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Extend Currie Pool, Navarro County, Texas

Two Good Wells Producing High Grade Oil and More Due This Week. Oklahoma Pools Extended. California Fears a Cut.

By James McIntyre

The Oklahoma Field experienced an interesting week. New pools recently opened were further developed with satisfactory results to operators, further showing the seemingly unlimited possibilities of Oklahoma as an oil producing region. The City of Tulsa, while unquestionably the hub of Oklahoma-Kansas oildom, is not, as faraway readers may imagine, an oil town. No gigantic gushers ever "spouted" oil from town lots within its corporate limits, and for years one might mount to the top of its highest skyscraper and look almost in vain for a derrick. In more recent years rigs might have been seen on the far-off horizon, but they were miles away and meant little because they did not represent big production. Recent events have shown that Tulsa may lie just over a big deep sand pool, unless the Arkansas River cuts it off, as rivers now and then have a way of doing. Just 5 miles south of the city, in Section 2-18-12, what may be a Wilcox sand development is blossoming out and the past week saw several big wells in pay sand. The Gladys Belle Oil Co. has one starting at the rate of about 3,000 bbls. a day; Obins & Weber and others have a 1,000-bbl. well. Charles Page is shut down on top of the sand with what looks like a large producer. These wells are in the Turkey Mountain district, back of West Tulsa and north of Jenks, and on the northern edge of the famous Glenn Pool opened in 1906. On the west side of the Continental Pool in the Bristow Field, Creek County, Waite Phillips and others have a well that started off at 215 bbls. the first hour and which made over 3,500 bbls. the first day. It is No. 2 Houston, in Section 26-16-9. In the new Garrison Pool in Okfuskee County opened by the Mid West & Gulf Oil Co. and Tatum & Marshall, the Turman Oil Co. and the Oklavania Oil Co. have a 1,000-bbl. well in Section 11-10-9, a direct offset to the original well. It was regarded as dry for a day or so, having been incorrectly measured for depth, but deeper drilling developed the big production. Three wells in the pool are producing 2,450 bbls. a day. The big well of the Roland Oil Co. in Section 2-15-8, Bristow Field, settled down to 9,400 bbls. a day with the tools in the hole, but after the tools were removed this was increased to 10,000 bbls. a day. Twenty new wells have been started around this big well. Production in the Tonkawa district in Noble County has mounted to 11,795 bbls. a day from recent big completions. In Pawnee County, north of Mannford, in the Wilcox sand pool recently opened, a second well is in, drilled by the McMann Oil Co., good for 1,000 bbls. It is a better producer than the original well. The Pulaski Oil Co. and others' No. 3 in Section 15-14-8, Bristow district, started off at 100 bbls. an hour from Dutcher sand, settling to 75 bbls. an hour with 25 per cent cut oil. Bradstreet and others, in Section 11-14-8, also drilled a little too deep and got some water along with a 200-bbl. production. The Comar Oil Co.'s No. 7 See, in Section 15-24-1w, Noble County, which started at 90 bbls an hour, settled to 1,340 bbls. a day. Hivick & Kirk in Section 31-2s-2e, Graham district, Carter County, is a 450-bbl. well after having been drilled deeper.

In Kansas, the Fox Bush Pool in Butler County showed the best results. The National Refining Co.'s No. 8 Molter, Section 26-28-5, started at 300 bbls. naturally; White Eagle Oil & Refining Co.'s No. 7 Molter, Section 26-28-5, 200 bbls. naturally; Lewis Oil Co.'s No. 5 Bunnell, Section 26-28-5, 200 bbls. naturally; No. 4 Bunnell, 150 bbls. naturally; S & S Oil Co.'s No. 6 Craig, Section 23-28-5, 300 bbls., after a shot. Marion County shows a brace of wells averaging 150 bbls. A deep test of the Blue Vermillion Oil Co. in Section 29-2-9e, Marshall County, northern Kansas, was abandoned as dry at 3,005 feet.

MID-CONTINENT PRODUCTION

Estimated production of the fields of the Mid-Continent at the close of the past week was as follows: North Louisiana, 88,377 bbls.; Arkansas, 36,030 bbls.; North Texas, 136,138 bbls.; Mexia, 84,750 bbls.; Kansas, 86,000 bbls.; Oklahoma: Cushing and Shamrock, 25,000 bbls.; Healdton, 19,900 bbls.; Hewitt, 28,500 bbls.; Burbank, 66,400 bbls.; Lyons-Quinn, 24,300 bbls.; other pools, 226,000 bbls.; all fields, 821,395 bbls., a loss of 4,484 bbls. in comparison with the preceding week.

The estimated daily production of heavy gravity oil in the Gulf Coast Field was 112,305 bbls.

The North Central Texas Field showed a gain of 2,130 bbls. a day in production last week. Two good producers were completed in the South Electra Pool and one in the Burkburnett Pool, in Wichita County. In the Electra Pool, the Griswold Oil Co.'s No. 24 Burnett started at 600 bbls. at 1,952 feet. Harvey and others' No. 2 Waggoner started at 360 bbls. at 1,960 feet. At Burkburnett Hunter & Watson's No. 5 Fowler is a 150-bbl. well at 1,225 feet. In Stephens County The Texas Co.'s No. 2 Norvell, a short distance south of the Curry Pool, is a 400-bbl. well at 3,309 feet. Charles Roser's No. 2 Nate Bell made 400 bbls. initial flow at a total depth of 3,208 feet. The pay was drilled in 33 feet. In Young County, a partial completion of the Roxana and the North American Petroleum Co.'s No. 4 Scott, on the Garnett survey, was flowing 2,000 bbls., 1 foot in the pay sand at 3,533 feet. In Eastland County, Dyer Bros.' No. 1, Block 3, Pioneer townsite, is making 750 bbls. at 2,480 feet. The Rainbow Oil Co.'s No. 1 Armstrong, 1½ miles northeast of the Pioneer Pool, an important semi-wildcat test, is showing 6,000,000 feet of gas and some oil. Drilling was stopped on account of a heavy gas pressure. It probably will be completed this week. In Hutchinson County, Panhandle district, McGee Bros.' No. 1 Smith Capers, is showing heavy oil at a depth of 3,000 feet. This is its second showing, the first around 2,850 feet. It is now drilling in lime. If it does not make a producer at its present depth it will be shot at 2,850 feet.

The Currie district in Navarro County, East Central Texas Field, was the sensation of the week in Texas. Two wells starting off at 2,600 bbls. a day and producing high grade oil above 42° in gravity came in not far from the original well. J. K. Hughes' No. 1 McGaw started at 1,600 bbls. a day and the Humphreys Oil Co.'s No. 5 Meador came later with an initial production of 1,000 bbls. a day. The same company's No. 2 Cole was a 10,000,000-foot gas well, and is expected to develop into a bigger oil producer than the same company's latest Meador well. Several other wells on the sand are expected to make good producers. Another important strike was in Milam County, Texas, where a wildcat well found a 25-bbl. production at 1,200 feet. It is 7 miles east of a shallow sand development. Beeler, Bell & Guiberson drilled the test. Mexia production is 84,750 bbls. a day. It was a relatively quiet week in that field, but there were a few new wells of the 1,000-bbl. type.

Orange crude was advanced 25 cents a barrel, bringing the price up to $1.25, or on a level with other Gulf Coast crudes. Daily average production of the Gulf Coast Field increased 1,260 bbls. The feature of the week was a gas blow-out in the Vinton Pool, south Louisiana, half a mile from production on the west side at 4,020 feet. Two big wells in the Hull Pool boosted the production of that field to 21,500 bbls. a day and it displaced Orange, which had been running second to West Columbia. No. 1 Stenger, of the Yount-Lee Oil Co., is still flowing 5,700 bbls. a day and the same company's No. 1 Merchant was deepened and started off at 6,300 bbls. and as it cleaned itself out, increased its production to more than 7,500 bbls. Much work will be done around these wells during the next six months. The Orange Pool did nothing to distinguish itself. Activity is switching to the east side of Cow Bayou in the hope of finding a more satisfactory sand and less water. Four very deep holes were abandoned in the Goose Creek Pool at 4,370 feet, 4,230 feet, 4,025 feet and 4,335 feet, respectively. Fewer deep holes will be drilled in the Gulf Coast in the future, even the big companies having come to the conclusion that on the law of averages they do not pay. Marrs McLean's No. 1 Gray, in the Vinton Pool, south Louisiana, which flashed a 5,000-bbl. initial production at 3,600 feet and sanded, was deepened to 4,020 feet, where a big gas sand was struck as above stated.

Daily production in the Louisiana-Arkansas fields fell 2,308 barrels a day last week. Twenty-six wells were completed in the Haynesville Pool, with a combined production of 6,256 barrels the first 24 hours, but most of them were comparatively small pumpers. The largest well of the week in the field was a 2,000-barrel initial producer of the Ohio Oil Co., No. 12 J. T. Waller, in Section 14-23-8. Drilling activity in the Haynesville district has shown a marked increase in the past two weeks, most of the new work having been centered in the western extension. That the possibilities of the El Dorado Field, in Union County, Arkansas, are by no means exhausted was shown by results last week. The south end of the district is being extended steadily. A 2,000-barrel well was completed by the Woodley Petroleum Co. on the Burns lease in Section 32-18-15 and D. C. Richardson has a 1,000-barrel well on the Greenlee lease in Section 28-18-15. A number of good pumpers completed on the northwestern extension of the field have caused considerable new work in Township 17-16. Two outside tests in 35-16-15 and 17-18-14 were abandoned as dry. A 600-barrel well in the Bellevue Field in Louisiana revived interest in that shallow district. R. L. Autrey drilled the good one in Section 10-19-11.

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THE BUSINESS CYCLE

Edward Eyre Hunt, secretary of the President's Conference on Unemployment, has written a brief article in a popular vein giving an outline of what the Department of Commerce aims to accomplish through a study of the Business Cycle.

The President's Conference on Unemployment last autumn suggested that an analytical study of the business cycle be prepared and an attempt be made to collect statistics and facts as to the methods for offsetting the bad results of those periods of expansion and depression which have been characteristic of our industries.

A Committee on the Business Cycle was appointed by Secretary Hoover, consisting of Owen D. Young, chairman; Clarence Mott Woolley, Joseph H. Defrees, Matthew Woll, Miss Mary Van Kleeck, and Edward Eyre Hunt, secretary.

The work of making the survey of the business cycle has been undertaken by the National Bureau of Economic Research (Inc.), 175 Ninth Avenue, New York City, of which Dr. Wesley C. Mitchell, the American authority on the business cycle, is director.

In these three paragraphs from an official circular issued by the Department of Commerce, writes Mr. Hunt, may lie an indication of the right road which industry is yet to take, if the ever-present threat of hard times and business depression is to be put permanently behind the manufacturers and the workers of the United States.

This committee is to report in the Autumn. It will make certain definite recommendations. Some of them will deal with the part which the Government is to play and some of them with industry's share in the new business life of the nation. Statistics, of course, will have much to do with the solution of this problem of the business cycle, to which forehanded men are looking as a possible way out of their many troubles.

Question: What is the business cycle?

Answer: That recurring procession of booms and slumps which affect our industry and our business directly, and our agriculture indirectly.

The solution: Applying to the future a knowledge of the past.

Prudent Andrew Carnegie had the cycle complex in his canny brain fully 50 years ago, though he may not have known it by any such high-sounding term. Before the panic of 1873 he was asked why he did not build more furnaces.

"It will be cheaper to wait," he said, "and buy the furnaces which other men are building."

He did not foresee the panic exactly, but he realized that the steel industry was getting out of hand and that certain boom projects were foredoomed to fail. He knew about the business cycle, though he could hardly have expressed it in words.

The Department of Commerce, through the Survey of Current Business, aims to give the careful American business man such statistics as will help him to make sound judgments on what is happening and what is to happen in the future. The Committee on the Business Cycle expects to put down in words and figures the swing of the pendulum from high to low and back again.

Both are interested in furnishing such information as will enable the wide-awake business man to lop something off the boom times and put it on the slump periods.

More business men are studying the cycle than ever before. The experience of such men will shortly be made available to the many.

Four times in a single generation there have been cycles of depression following booms—in 1921, only now just beginning to disappear; a similar situation in 1914-15; again in 1908, and back in 1894-96. Well, within 30 years, then, we have had four situations in which the unemployed have been reckoned by the millions and the idle capital by the billions.

How are we going to make more even these ups and downs—that is, take something off the top of the good times and with it fill in the troughs of the depressions?

This is the question which the committee hopes in some measure to answer in its study of the cycle.

It plans to point the way to a knowledge of the long-range trend of business. It will make a study of the financial devices for controlling the business cycle, and the improvement of the statistical indices of employment and other business barometers.

These recurring periods of inflation and deflation in general business are intimately reflected in each individual business, and each individual manufacturer needs now to study his own business cycle. The organizations which have done this in the past have reaped prompt benefits. A rapid survey of American business shows more than 50 examples of intelligent anticipation of the business cycle by American business men.

It is worth noting that this intelligent anticipation results not merely in greater security on the job for the employes—and, of course, the President's Conference on Unemployment is interested in that—but also it has resulted in profits to the employer at a time when other people's business was in the doldrums.

There was a time when the country had a financial panic about every so often, precisely as it now has the business depression, but the Federal Reserve Banking System has taken away this threat of financial cataclysm, which used to accompany severe depressions.

Why not tackle the other features of the business cycle as well, making a competent study of them, at least? That is Secretary Hoover's position exactly, and he hopes to find an answer to his questions in the results of the study now being made by the Business Cycle Committee.

AN OIL FIELD IN SCOTLAND?

Much interest has been created by the announcement made by S. Pearson & Sons that they have reached oil in a drilling test they have been carrying out under arrangement with the British Government at D'Arcy, near Dalkeith, in Scotland, on the property of the Marquis of Lothian.

The depth at which the oil sand has been reached is about 1,810 feet. Although it has not yet been possible to place any estimate on the yield, it is believed that a valuable deposit of oil has been struck. The drilling crew, who are mostly Americans, suspended operations and it was expected that Pearson production men would make an inspection soon afterward. The result has not yet been announced. Drilling operations at D'Arcy have been in progress for four years and were originally undertaken at two places—D'Arcy, in the eastern district and west Calder, in the western district—both within the area of the Scottish shale fields. Drilling at West Calder was suspended about 12 months ago. The D'Arcy well started in the oil shale series on an anticlinal structure, but higher geologically than the West Calder well, and if the D'Arcy well gives promise of satisfactory results it is probable that drilling at West Calder will be resumed.

Opinions of the possibilities of the discovery have been difficult to elicit on the spot, official injunctions to reticence resulting in a rather exaggerated air of mystery, but there appears to be ground for believing that favorable developments are likely. The place has been inspected by Col. Bathurst, the British Government expert, and it is understood that the visit caused him satisfaction. Considerable drilling difficulties had to be overcome, the strata containing hard nodular masses of rock, which caused frequent crooked-hole trouble, with consequent loss of time in straightening, and water troubles also had to be surmounted.

NATURAL GASOLINE PRODUCTION

The United States Geological Survey has just published statistics, subject to revision, giving the production of natural gasoline in the United States for the year 1921. The report shows that there were 957 compression plants in the country, a falling off of 10 from the number given in 1920; a production of 355,346,900 gallons, as against 281,131,973 gallons in 1920, or a gain of 88,914,578 gallons in 1921. The value of the 1921 product was $46,038,200, compared with $50,272,961 for the 1921 product; indicating an average price of 13 cents in 1921 as against 17.9 in 1920. The estimated volume of gas used in the manufacture of the product was 134,817,400 cubic feet in 1921, showing an average yield per 1,000 cubic feet of 2.6 gallons, while the 1920 report showed 112,887,802 cubic feet of gas used, an average yield of 2.49 gallons per 1,000 cubic feet.

In the absorption field, 204 plants are accounted for in the United States in 1921, with a total production of 118,311,600 gallons, valued at $19,679,700. The totals for 1920 were 187 plants; 103,611,949 gallons production, valued at $21,515,161. This indicates a gain of 17 in the number of plants; a gain of 14,699,651 gallons in the output of the plants; a falling off of $1,835,461 in the value of the product. The average price per gallon in 1921 was 17 cents and in 1920, 20.8 cents. The volume of gas used in 1921 was 334,609,200 cubic feet, showing an average yield per 1,000 cubic feet of four-tenths of a barrel, while the volume used in 1920—383,543,150 cubic feet—yielded only twenty-seven one hundredths of a barrel per 1,000 cubic feet, which might indicate a richer gas or improved methods of extraction in 1921 than in the previous year, the average gasoline yield for 1,000 cubic feet having increased 66⅔ per cent in 1921.

The total amount of natural gasoline—compression and absorption—manufactured in the United States in 1921 was 473,658,500 gallons from 1,161 plants. The total value of the product was $65,717,900, showing an average price of 14 cents per gallon. In 1920, from 1,154 plants, 384,743,922 gallons were turned out, valued at $71,788,122, an average price of 18.7 per gallon. The 1921 figures show a higher average gasoline yield per 1,000 cubic feet of gas. It was 1.0 in 1921 as against 0.78 in 1920.

INCREASED TAXES ADVANCE RATES

That the ordinary taxpayer fails to realize that an increase in tax rates is an increase in the cost of the service rendered him by his city, State or National Government is a contention brought out by R. F. Pack, vice president of the Northern States Power Company. In this connection, the action of numerous cities, where municipal ownership of utilities holds sway, increasing taxes is of particular interest in view of the fact that the ordinary citizen makes little or no protest against an increase of taxes for service rendered by these publicly-owned utilities, but will sign protests and subscribe funds for the prosecution of these protests before State Public Service Commissions on any increase in rates made by privately-owned utilities.

Mr. Pack says in this connection: "It is often stated that a municipality could and would conduct the business of supplying public utilities at cost, that it could borrow money for extensions at a lower rate of interest, and that no profit would be paid to private individuals. Consider for a moment any city in the country. It is conducting the business of police protection, street cleaning, collecting of garbage, street lighting, education and other things. The citizens pay for these services in the shape of taxes, which are the same as rates.

"It is doubtful if a municipality obtains capital at a much lower rate than a well managed public service corporation. Municipal bonds are known as 'tax exempt,' whereas in the case of private corporations the income derived is taxable. In other words, a portion of the higher rate of interest paid on the securities of private corporations is taken from the owners in the shape of taxes and the balance left is not much, if any, in excess of the balance left to the owner of the municipal securities.

"Many citizens may say they pay no taxes and therefore are not interested in the tax rate. As a matter of fact, taxes are paid either directly or indirectly by all classes of citizens. Higher taxes paid by the owner of property or by the merchant, are passed on to the poorest citizen in the form of higher rents, higher food costs and higher living costs generally."

When a municipality owning its public utilities raises its taxes, the rates for those utilities are raised to the taxpayer who is a consumer and to the user who is not a taxpayer, through increased rents or higher living expenses.

Gasoline From Uncondensed Still Vapors

In Which Mr. Dow Tells of Improved Recovery Practices in the Refining Industry. A Paper That Will Serve as a Text Book.

By D. B. Dow, *Petroleum Engineer, Bureau of Mines*

In collecting and disseminating information on improved practices used in the production of petroleum and in the manufacture of gasoline, the Bureau of Mines has aided in creating an interest in efficient methods in all phases of the oil and gas industry. In the refining industry there is a growing tendency for increased efficiency, and information relating to improved practices should be of value not only to the larger and more efficient plants, but particularly to small refineries unable to carry out a large experimental program.

The refineries of the United States required 433,915,029 barrels of crude oil during the year 1920[1], including 61,136,210 bbls. of Mexican crude. This yielded 4,882,546,599 gallons of gasoline, an average daily production of 13,340,291 gallons. Besides the gasoline obtained from crude oil by fractional distillation and from heavy oils by cracking, this amount includes 3,152,924 bbls. of natural gas gasoline blended with gasoline from the other two sources.

This report, which The Oil and Gas Journal will run in serial form, shows the possibilities of increasing the gasoline yield from the crude by recovering the appreciable amounts that are lost by remaining uncondensed. Unless preventive measures are adopted, these losses will increase in the future, because crudes are being handled in the field with more and more care to avoid evaporation, so that they will contain much lighter and more volatile fractions than at present. The magnitude of the loss from non-condensation of these vapors has been realized only by few refiners, judging from the number of plants that have recovery systems. The 13 refineries studied are obtaining 128,651 gallons of gasoline daily from uncondensed still vapors. These plants are situated in the various refining centers, other than the Pacific Coast, and are running crude representative of all the producing fields east of the Rocky Mountains. In addition, several are running Mexican crude. Information from California refineries indicates that on account of the smaller gasoline content of the California crudes, there are no recovery plants of importance in that State.

J. O. Lewis, A. W. Ambrose, H. H. Hill, E. W. Dean, C. R. Bopp, and N. A. C. Smith, of the Bureau of Mines, assisted in the work.

Messrs. H. R. Harwood, N. E. Loomis, T. G. Delbridge, H. H. Rathvon, J. Hansen, A. S. Hopkins, J. W. Newton, William Slater and John Noble, co-operated by permitting inspection of their plants. Messrs. W. E. Espey, A. J. Rodger, W. F. Stroud, R. L. Spencer and H. G. Smith furnished data on operating methods and experimental results in several refineries which recover gasoline from uncondensed still vapors. Also, valuable information was obtained from Messrs. W. H. Leavitt, W. D. Neal, R. O. Neal and I. P. Parkhurst.

Distillation of Petroleum

Physical and Chemical Characteristics of Petroleum Hydrocarbons.—Crude petroleum consists of various hydrocarbons, each having its own physical characteristics (such as boiling point and specific gravity), with compounds of sulphur, oxygen and nitrogen present as impurities. The hydrocarbons of the paraffin series, having the general formula C_nH_{2n} divided by 2, predominate in the paraffin and mixed base crudes from the Eastern, Mid-Continent and Rocky Mountain fields. The naphthene base crudes of the Gulf Coast and California fields consist largely of hydrocarbons of the naphthene series, having the general formula C_nH_{2n}. Certain crudes contain unsaturated hydrocarbons of the olefin series in small amounts, and some also contain aromatic hydrocarbons of the benzene series.

The hydrocarbons comprising the gasoline and gas considered in this paper are mostly of the paraffin series, although gases from cracking stills contain relatively high precentages of unsaturated hydrocarbons and appreciable amounts of those belonging to the benzene series. The first few members of the paraffin series (methane, ethane, propane, etc.) are gases at ordinary temperatures. Normal pentane, having a boiling point of 97 degrees F.; normal hexane, boiling point 154 degrees F. (68 degrees C.); normal heptane, boiling point, 208 degrees F. (98 degrees C.), and normal octane, boiling point 259 degrees F. (126 degrees C.) are the main constituents of the gasoline recovered from still vapors, although these vapors contain some of the lower members of the series dissolved as gases and certain higher members that are carried over in the still vapors, either mechanically or on account of their partial pressures. With each succeeding member of the paraffin series, the boiling point becomes higher. Hexadecane, for example, has a boiling point of 549 degrees F., as compared with pentane, which has a boiling point of 97 degrees F.

Laboratory Distillation of Crude Petroleum

Fractional distillation of crude oil separates it into cuts or fractions containing mixtures of hydrocarbons having similar physical properties. In distilling crude oil complete separation of individual hydrocarbons is exceedingly difficult, even in the laboratory, unless countless refractions are made. Redistillation of a sample of distillate which was driven over between any two given temperatures will show the presence of hydrocarbons boiling at lower temperatures as well as higher temperatures than the limits of the previous distillation. This is due to the fact that in a mixture of hydrocarbons, the boiling point of each is influenced by the presence of the others.

In the distillation of crude oil, hydrocarbons of the lowest boiling points are the first to be vaporized. Therefore, the first fraction has a much higher percentage of low-boiling hydrocarbons than the original liquid and is the most difficult to condense, as the temperature of liquefaction is quite low. As distillation proceeds, the temperature required to vaporize the remaining hydrocarbons becomes higher, and the resulting vapor is consequently more easily condensed.

Condensation of the vapors formed by heating crude oil is effected in the refinery by leading vapors through coils of pipe submerged in water. On cooling, most of the vapor becomes liquefied, but a certain amount of vapor, due to insufficient time for proper cooling or the fact that its condensing point is lower than the temperature of the water, will remain uncondensed. Also, certain other fractions will not be condensed, for the reason that their liquefaction points are affected by the presence of other hydrocarbons. A small part of this uncondensed vapor is dissolved in the liquid that has condensed.

Fire Distillation.—The first step in refining crude oil into its various products is accomplished by fractional distillation, or more commonly termed "fire distillation," in stills that are heated directly with fire. The "fire stills" are horizontal, riveted or welded steel shells mounted in brickwork. The upper part above the brickwork is often covered with insulating material. A vapor line connected to the top of the still carries the hot vapors to the condenser, from which the condensed liquid flows through "run-down" lines to the receiving house or "tail house," where the "stream" of condensate passes into the "lock-box," to the proper receiving tanks by means of pipe manifolds.

In the "batch" process, formerly employed, the entire distillation is conducted in one still, the different fractions, such as crude benzene, kerosene distillates, gas oil, etc., being successively obtained as the temperature of the charge is raised. The "batch" method is used exclusively where crude oil is run down to coke and in reducing paraffin base crudes to cylinder stocks, also to some extent for obtaining wax distillates from the residue from continuous crude stills. Stills employed for the latter purpose are commonly known as "tar stills."

In the continuous process, crude oil is pumped into the first still of a battery, passes successively through each of the stills and the residuum discharged from the last still of the battery. Each successive still is maintained at a higher temperature than the preceding one. Fractions coming from each still in the battery do not change from lighter to heavier products, as in the batch process, but have fairly uniform gravities and boiling points. For example, a battery of continuous stills operating on average Mid-Continent crude gives cuts of light naphtha, heavy naphtha, kerosene distillate and gas oil in the order named. The continuous process also includes the method of distilling oil in pipe stills. In this method, the oil is pumped continuously through heated pipes, from which the vapors are taken off and the different fractions condensed.

Steam Coils

Both the "batch" and "continuous" stills of the shell type are generally equipped with steam coils, so perforated that the steam is directed against the bottom of the still. These perforations tend to distribute the steam evenly through the body of oil. The introduction of steam minimizes cracking, since it agitates the oil and prevents local overheating. The addition of steam also helps distillation by carrying some fractions over mechanically and by reducing the temperature at which they distill.

Pressure Distillation

When heavy oils are distilled at temperatures higher than their normal boiling points, decomposition takes place and the distillate is made up of hydrocarbons with much higher Baume gravity and lower boiling points than the original oil.

If heavy oil is distilled under pressure it is possible to reach the decomposition point before the temperature of the charge attains the boiling point of the oil at the pressure in question.

The decomposition of oil by heat is commonly known as "cracking," and the stills in which this operation is conducted are known as "cracking stills" or pressure stills.

Distillation under pressure is commonly used for producing gasoline and light distillates from heavy oils such as gas oil. On account of the decomposition that takes place, the products obtained contain a high percentage of unsaturated hydrocarbons.

Steam Distillation.—After fractional distillation in fire stills, the light distillates are treated in agitators with acid and caustic, and then made into marketable gasoline by redistilling in steam stills. A steam still has the same general construction as a fire still, but a larger number of perforated steam coils. Distillation in this type of still is largely by steam, although a fire is sometimes kept beneath the still to regulate distillation. The steam causes hydrocarbons to distill, as pointed out above, at temperatures much below their normal boiling points. Much closer cuts are obtained in this way than in fractional distillation. Distillation by steam may be conducted either as a "batch" or continuous process.

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[1]Refinery Statistics for 1920: Bureau of Mines, Mason, H. F., petroleum economist.

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MEN KNOWN IN OILDOM

RAY R. ROSIER

Among the sales managers of Mid-Continent refiners and marketers, a popular individual is Ray R. Rosier, sales manager of the Western Oil Corporation, whose affairs are directed from the Cosden Building, Tulsa, Okla. Mr. Rosier has spent all of his mature years in the oil business, becoming an employe of the old Kansas City Refining Company, at Kansas City, Kans., after leaving school in 1904. He was with that company in various capacities at its refinery for a year, then became an oil jobber. After three years in Kansas City Mr. Rosier removed to Hutchinson, Kans., where he lived five years.

In 1918 Mr. Rosier came to Oklahoma with the Pierce Oil Corporation, and a year later joined the Western Oil Corporation, which has become a large buying organization in the Mid-Continent territory.

Personal Paragraphs

E. V. Newkirk, head of the Western Kentucky division of the Indian Refining Company, has been very ill at Bowling Green, Ky.

* * *

Michael Roberts has been placed in charge of the new uptown office of the Oklahoma Tool & Supply Company, in Hotel Tulsa.

* * *

Frank Hinderliter, head of the Hinderliter Tool Company, of Tulsa, was in conference last week in the Burbank Oil Field with officers of the Osage and Midland Valley Railroads.

* * *

Harry Culver, of Chickasha, Okla., manager of the Culver Oil & Gas Association, advises that the first test of the association is ready to spud in Section 30-3n-3w, Grady County.

* * *

E. E. Carter, general agent of the Frisco for the Tulsa district, says that the Frisco is to construct a spur from near Bristow into the north extension of the Continental Pool, in Creek County.

* * *

W. M. Welch, president of the Association of Natural Gasoline Manufacturers, returned to Tulsa this week, after attending a series of meetings in New York, relating to the refining industry.

* * *

Walter Price, of Nowata; J. M. Twigg and J. H. Coleman, of Newkirk; L. E. Kennedy, of Muskogee; E. R. Sager, of Tulsa; Ed. L. Jillison, of Okmulgee, were Oklahoma oil men in Bowling Green, Ky., last week.

* * *

L. L. Marcelle, of the White Eagle Oil & Refining Company, is among the numerous visitors at Casper, Wyo., many of whom were attracted by the prospect of early operations in the Teapot Dome section.

* * *

C. L. McMahon, of Okmulgee, Okla., is reported to have sold to the Barnsdall Corporation a half interest in the 40 acres adjoining the Roland Oil Company's well, near Bristow, Okla., for about $250,000.

* * *

C. M. Lamason, manager of refinery sales for the Pure Oil Company, has been surveying the refinery situation from first-hand lately. Almost every center in the Oklahoma and Texas fields have been visited by Mr. Lamason.

* * *

George A. Getty, president of the Minnehoma Oil Company, who spent several weeks in Oklahoma, has returned to his home in Los Angeles. In the Golden State, Mr. Getty has some individual oil operations nearing completion.

* * *

C. T. Snowden, representing the Charles A. Schieren Company, belting manufacturers of New York City, was in Tulsa last week inspecting installations that the Happy Belting Company has made in oil fields adjacent to Tulsa.

* * *

T. P. Collins, president of the Industrial Petroleum Corporation of Illinois, has announced the opening of a Tulsa office, which will be under the direction of J. H. Campbell, formerly sales manager for the Fairmont Refining Company.

* * *

Thomas Coughlin, in charge of bulk deliveries at the Westwego terminals of the Union Petroleum Company, according to Flash and Fire, complains that he has had exactly nine nights off since January 1 and that time is getting heavy on his hands.

* * *

The Bensons, of Chautauqua County, Kansas, have just completed their twentieth oil well in the Sedan district. The brothers, Andrew and C. H. Benson, have more than 1,000 barrels production in the county. The last completed well was in Section 34-33-10.

* * *

Thomas W. White, chief engineer, and W. L. Connelly, field superintendent, both of the Sinclair interests, are in Casper, Wyo., to take charge of operations under T. F. Algeo, of the Sinclair-Wyoming Oil Company. Their going there is expected to mean the starting of work on the Teapot Dome.

* * *

P. M. Sher was elected director of the Standard Oil Company of New York, succeeding Martin Carey, deceased, at a meeting held in New York City on May 25. The vacancy among the vice presidents of the New York company was filled with the election of Howard E. Cole. C. M. Higgins was chosen secretary.

* * *

John A. Sheppard, oil producer of Muskogee, Okla., is attracting considerable attention because of his efforts to discover oil within a few miles of Dallas, Tex. Mr. Sheppard's test near Dallas is being drilled with standard tools, while heretofore all operations in that locality have been with rotary tools.

* * *

Victor H. Cochrane, civil engineer of Tulsa, is a member of the special committee of the American Society of Civil Engineers, which holds a meeting in New York City early next month to provide new specifications for bridges. The committee's recommendations are of particular importance to the southwestern oil States.

* * *

Charles M. Staigers, lease specialist of the land department of the Marland Refining Company, who has been in Tulsa for the past week, is a man who has literally spent all of his life in the oil fields. He was born in Pennsylvania, and after working for some of the largest companies in the eastern fields, followed the oil development westward.

* * *

The April meeting of the Magnolia Petroleum Company's foremen in the Cushing-Yale district, Oklahoma, was attended by E. D. Smith, L. H. Veasey, J. W. Tipton, B. L. Williams, E. E. Storts, F. W. Mason, A. C. Eaton, M. W. Woodin, H. H. Hines, William H. Johnson, W. G. Brittian, Dow Dunaway, C. E. Hawkins and Robert E. Mitchell.

* * *

Joseph E. Pogue, consulting engineer, whose book "The Economics of Petroleum," has been widely commented upon, because it presents the more important economic facts relating to the petroleum industry, is making a detailed survey of the Mid-Continent oil fields. Information that Mr. Pogue has gathered will be used in a revised edition of his book.

* * *

William H. Allen, a native of Warren, Pa., has been elected president of the Shell-Union Oil Company, the American subsidiary of the Royal Dutch-Shell Combine. Mr. Allen practiced law at Warren for 32 years and two years ago became a director of the Union Oil Company of Delaware, and with the promotion of General Andrews to be chairman of the board of the Shell-Union, Mr. Allen was made president.

* * *

C. J. Webster, president of the Noco Petroleum Corporation, has been visiting Oklahoma oil fields, with several officers and stockholders of the company. The Noco owns 35,000 acres of leases in the Okmulgee district alone. C. B. McCluskey, of Kansas City, Mo., recently elected secretary and treasurer of the company, and J. E. McDonnell, of Des Moines, Iowa, a director, accompanied Mr. Webster to Oklahoma.

* * *

F. W. Crawford and O. C. Hagan, of the Ohio Fuel Company; J. R. Muntz, of the Arkansas Natural Gas Company, and J. F. McCandless, of Pittsburgh, Pa., are in the Wyoming region on an inspection tour of the holdings of the Ohio Fuel and the Arkansas Gas companies. These two firms have about 160,000 acres in Colorado, Wyoming and Montana and have two wells drilling, one in Wyoming and one in Montana.

* * *

F. O. Funk, of Cochran & Funk, of Parkersburg, W. Va., and W. L. Taylor, of the Blair interests at Cheyenne, Wyo., were in Casper for a few days en route to Lander on a tour of inspection. Mr. Funk is a pioneer in the oil industry in that region, going to Casper when it was a cattle town. He opened the Lost Soldier Field and formed the Bair Oil Company, which developed that field. Before going to Wyoming, Mr. Funk was an oil operator of southern Ohio and West Virginia.

* * *

G. H. Ackerman, treasurer of James B. Berry's Sons Company, one of the largest oil marketing concerns in the country, while en route home from a trip through Louisiana and Texas stopped in Tulsa several days ago. He informed J. B. Lilley, Mid-Continent manager, that he believed that gasoline prices would steadily advance during the summer. He found the refiners in the two States sold up and competition keen for what stocks were available on the spot market.

* * *

Col. J. R. Walker, of Valdosta, Ga., who represented his district in Congress several years, possesses the traits that makes a good oil man. In 1917 he leased 5,000 acres near Lisbon, Union County, Arkansas, and drilled a number of tests for oil, each of which was dry. Early this year he was induced to become a party to the Cycle Oil Syndicate, and success appears to be coming his way at last. The syndicate's first well is flowing 100 barrels. The crude is said to possess 35 per cent gasoline content.

* * *

Charles Whaley, oil editor of the Muskogee (Okla.) Phoenix, is a versatile man. During the day he reports and comments on Oklahoma oil news, and at night he plays the trombone in an orchestra. During the summer months the orchestra of which Whaley is a member plays at a lake near Muskogee, and a third trait is then developed by Mr. Whaley. He is said to be some fisherman and that almost every time that he throws his line into the lake a fat catfish grabs hold, waiting for the musicians to take a rest before it is pulled in. As a result of his threefold ability, Mr. Whaley is said to be getting along fairly well in the world.

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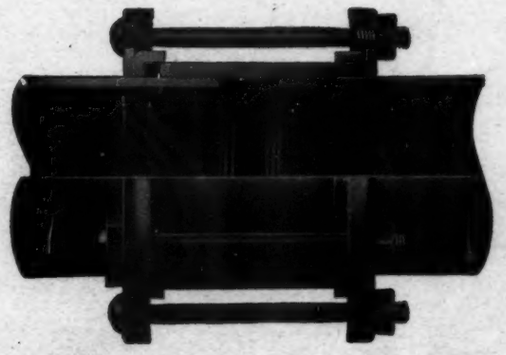

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BRADFORD, PENNA., U. S. A.

The Sea is Fuel Oil's Unrivaled Field

It Has Proved Its Superiority Over Coal in Every Way in the Shipping Industry and is Steadily Gaining in Favor.

By N. O. Fanning

New York, May 25.—Science and engineering are opening up a new era in the petroleum industry. Development of new refining processes, per fection of old ones, and the co-operation of engineers in building equipment designed to use oil most efficiently, are combined to open up wider the gates to the universal use of oil as fuel instead of coal.

The use of oil as a lubricant always will hold its place, but its use as fuel for engines in the form of gasoline and fuel oil is gradually crowding out all other uses. Kerosene yield of the crude oil run in refineries of the United States in 1921 was only 10%, and with greater efficiency in refining it is probable that this percentage will be added to the 26% yield of gasoline now obtained within a few years.

Possibilities of the use of fuel oil spreading are unlimited, but the actual speed with which coal users will be converted to oil depends on the success of engineers in the development of fuel oil burners. At present the use of fuel oil has achieved its greatest progress in the shipping industry. This is natural because the advantages of fuel oil over coal are accentuated in ocean-going vessels, where every saving of space means more room for cargoes, and hence increased earning power. In 1921 it is estimated that 90,000,000 bbls. of fuel oil were consumed by the world's shipping, as against 80,000,000 bbls. for general industrial consumption. The use of oil in naval ships probably adds 20,000,000 bbls. to the total under "shipping."

Oil Burner's Speed Record

The success of oil as a fuel for big ships has been proved, and also well advertised, by the accomplishments of some of the big trans-Atlantic liners. Early this month the steamship Mauretania, which has been an oil-burner for some years, established a speed record from Cherbourg to New York, making the trip in exactly 5 days, 8 hours and 56 minutes. The previous record was bested by seven hours.

The fuel oil installation of the Mauretania is typical of that on all big liners. A description follows:

"Capacity has been arranged for about 5,350 tons of oil fuel. To provide this capacity the wing watertight compartments, previously used as coal bunkers and extending for the full length of the boiler rooms, have been converted to fuel oil tanks. There are 15 tanks on each side of the vessel, or 30 separate tanks in all.

"One tank on each side in each boiler room is arranged as a settling tank, to which the fuel is transferred from the remaining or storage tanks before passing to the pumping and heating pump units which supply oil to the burners. There is a transfer pump in each boiler room for transferring the oil fuel from the storage to the settling tanks.

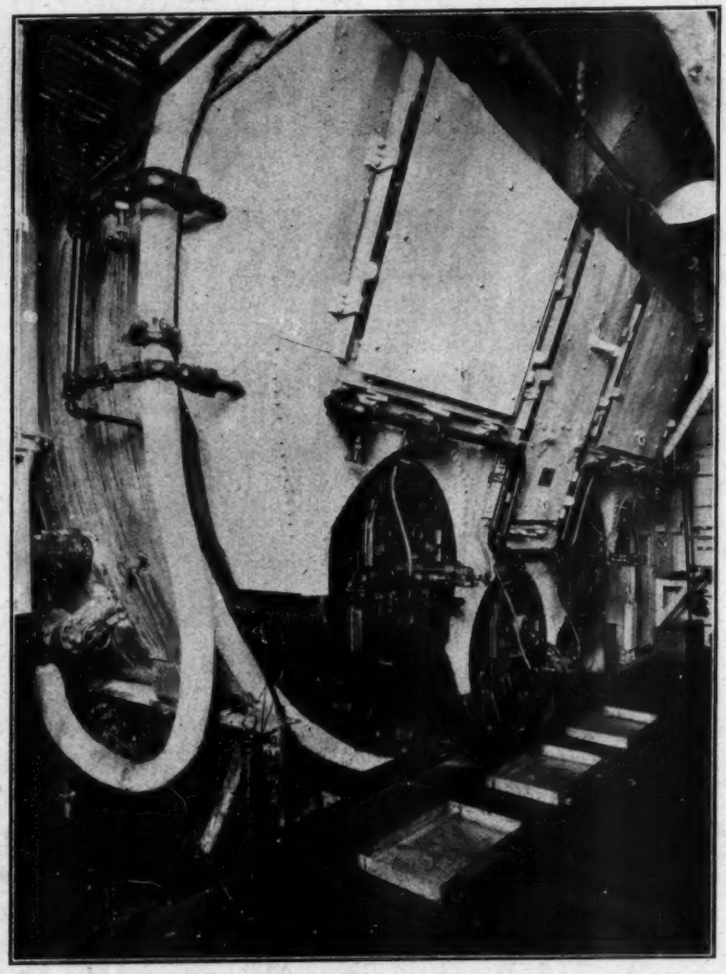
"The settling tanks are provided with heating coils to bring the fuel to a suitable degree of fluidity for pumping to the burners. Three pumping and heating units are fitted in each boiler room, two for normal use and one as a standby.

"For taking fuel oil on board there are four filling stations, arranged two on each side of the ship above the main deck. At these stations the supply pipes from the source of supply (usually a barge or oil tanker laden with fuel oil) are coupled up to the ship's piping system. At each filling station is a strainer, and after passing through the strainer in each case, the fuel is led by a vertical pipe to the main line of filling and suction piping, which extends on each side for the full length of each boiler room. From these main pipe lines branches are taken to each tank, each branch being provided with a valve, so that oil may be supplied to or taken from any tank, as desired.

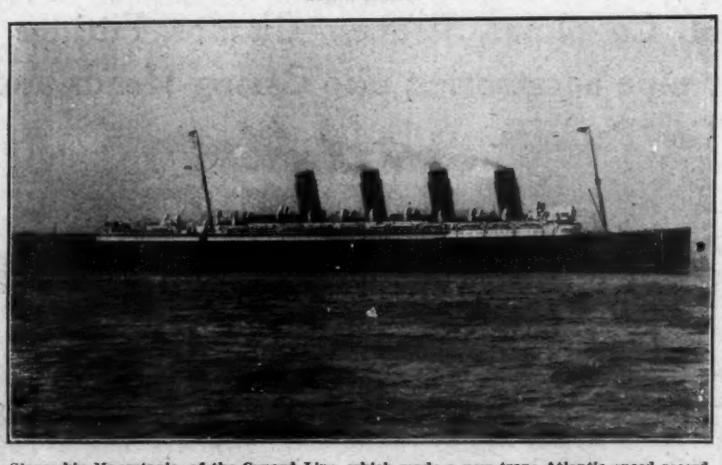
"The next stage is that the transfer pumps already referred to draw the fuel from the storage tanks through the main pipe lines and pass it to the settling tanks through a system of discharge piping. From each settling tank the oil is taken through a separate valve on the tank and piping system to the fuel oil pressure pump units.

"To permit the escape of air when filling the tanks, and also act as a means of overflow to prevent undue stress upon the structure of the tanks, air pipes are provided from the top of each tank. For overflow purposes these branch pipes are connected to main pipe lines on each side of the ship. These main lines have a droop towards aft, so that any overflow of oil is led to the aftermost wing tanks on each side, which act, therefore, as overflow tanks, and have relief valves placed above the waterline to prevent undue pressure on the tanks.

"To show the level of oil at any time there has been installed a system of pneumercator gauges."



Portion of boiler room of The Texas Co.'s oil tanker "Illinois," showing oil burners on Scotch boilers.



Steamship Mauretania, of the Cunard Line, which made a new trans-Atlantic speed record from Cherbourg to New York early in May. She is an oil-burner.

Many Good Oil-Burning Systems

There are numerous good oil-burning systems. All but two of the large fleet of passenger liners of the Cunard Line, of which the Mauretania is one, are oil burners, and the two that are not will be converted to oil in the near future. All the larger ships are oil burners. The Wallsend-Howden system is used on the Mauretania, the White system on the Berangia (now being converted) and Aquitania. The Berangia, by the way, is a much larger vessel than the Mauretania, and ranks with the Leviathan and Majestic.

The Majestic, an oil burner, and the largest vessel afloat, arrived in New York on May 16 from Cherbourg on her maiden voyage. It is a 56-000-ton liner, whereas the Mauretania boasts 31,000 tons. The boiler-room installation on the Majestic is huge. There are 48 boilers with 240 furnaces, with a maximum oil consumption of 800 tons daily.

The Leviathan, which is now being converted into an oil-burner at Newport, Rhode Island, by the Peabody Engineering Co., is expected to be ready for service under the American flag next spring. It is a 52,000-ton liner, the same as the Berangia. The size of the installation ranks with that on the Majestic. There are 46 Schultz-Thornycroft boilers and five burners to each boiler, or a total of 230 oil burners. The maximum oil consumption is 1,000 tons per day.

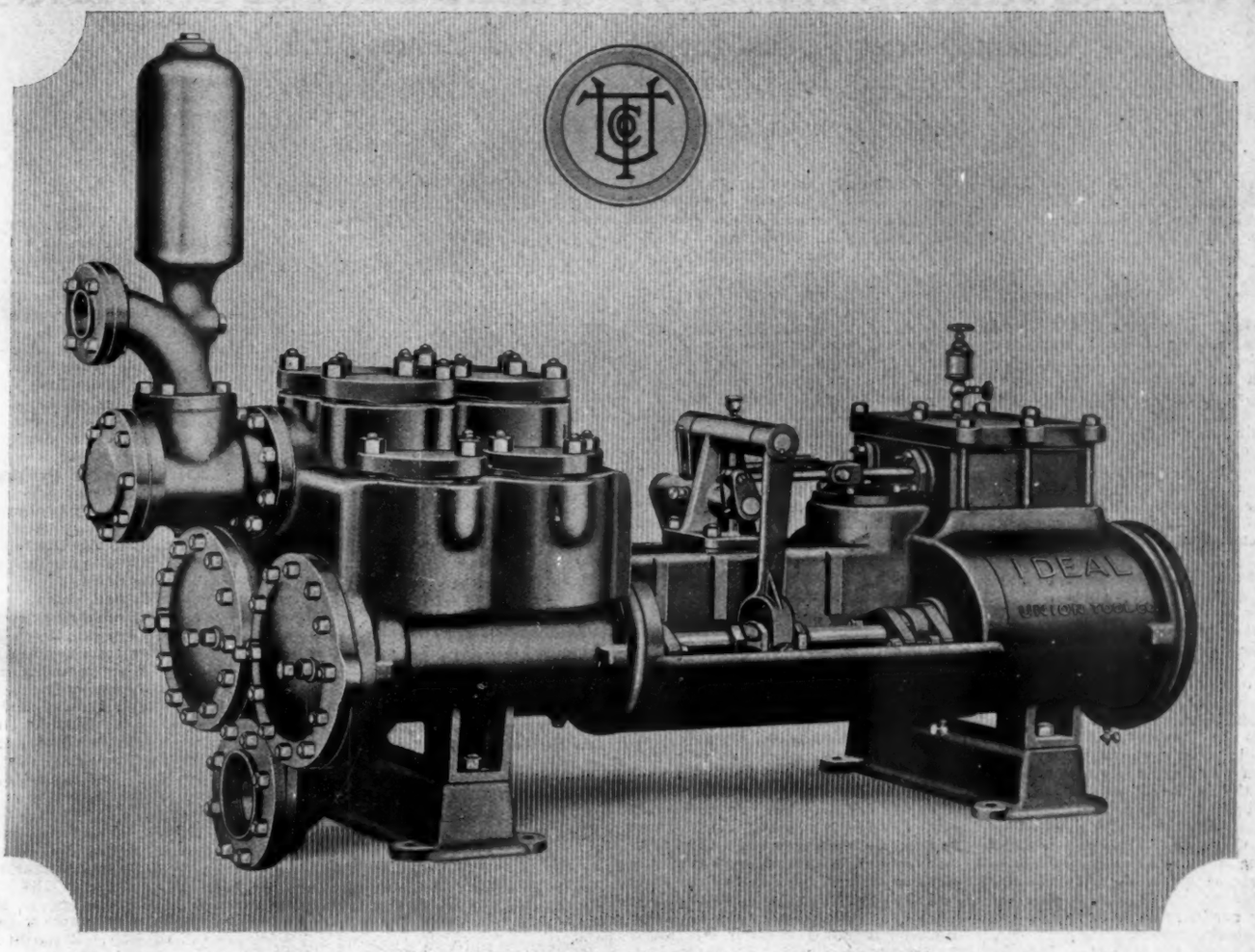
The Principle of Burners

The burner, which is the heart of the oil-burning system, works on the principle of an ordinary atomizer, spraying the oil under moderate pressure into the firebox. The scattered spray is caught up in fiercely glowing heat, which raises steam in the boiler tubes to be conveyed through pipes to the engines. The details of the system are correspondingly simple. The oil is first heated, in coils that look like the ordinary domestic gas heater coils, familiar in many city households. These coils are encased in cylinders of iron, into which live steam is introduced, quickly heating the oil as it passes through the coils.

To regulate the flow of heated oil through the pin-head opening in the furnace front, a needle valve is employed, identical in principle to the valve in an automobile carburetor. This valve has certain curving grooves cut in it, which serve to give the oil a rotary motion needed to spray it in the fire, and to separate the particles of fuel oil and allow air to mix with the particles, which assures an even flame.

The accompanying photograph shows one of three Scotch boilers in the boiler

(Continued on Page 104)



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Semi-steel and steel castings are used to strengthen all parts subjected to unusual strain.

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For years, "Ideal" Slush Pumps have been the choice of operators who demanded real service without the necessity of frequent overhauling and shut-down losses that follow.

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THE NATIONAL SUPPLY COMPANIES

All Fortunes Are Not Made in New Fields

Ancient District Yielded Riches to Stay-at-Homes After Adventurers Deserted It—Condemned Lease Now Worth Million.

By Joseph W. Orr

Oil City, Pa., May 27.—Surely the author of "Aladdin and His Wonderful Lamp," whose identity has been lost in antiquity, was gifted beyond all other men with the spirit of prophecy when he connected an oil bearing device, a lamp, with visions of sudden and inexhaustible wealth.

Vast riches, evolved by that mythical lamp—the vastness of wealth staggering imagination of millions of humanity were less than the proverbial "drop in the bucket," as compared with the riches and material benefits that have accrued to mankind since Colonel Edwin L. Drake, on August 28, 1859, demonstrated the soundness of his theory that petroleum could be produced by drilling directly therefor instead of by distillation from coal shales or depending upon that which came from wells drilled for salt water.

In none of her products has nature been so generous in rewarding the explorer; in no instance has she been more consistent in preserving for posterity this utility the real character of which is still a closed secret to mankind.

Vast forests have disappeared under the advancement of humanity; coal fields which men in their lack of wisdom believed to be inexhaustable have been eliminated; veins of all character of ores have been wiped out, and animal life, including the herds of buffalo and wild pigeons have "passed on," but petroleum and its products, known to history from Biblical times when Pharaoh's daughter put young Moses into a rush cradle, made it waterproof with "pitch," undeniably the asphaltum of the present day, and sent him adrift, are still to be found in their original locations.

Evolution of the petroleum industry from the time Drake drilled his discovery well in Venango County, near Titusville, almost 64 years ago is too vast to contemplate with any normal degree of realization.

Imagine the early conditions!

Drake, the dreamer, representing the Rock Oil Co., finds the oil bearing sand at a depth of 69½ feet, which for a short time produced oil at the rate of 40 bbls. and then dropped to a steady production of 15 bbls. daily.

That oil could be found at any distance back from low water mark in a stream was disbelieved for a time, but from the first development until "right now" the members of the oil fraternity were a stiff-necked rebellious race, disdaining to follow any set rules. Their principal weakness was to follow the practice of the schoolboy in the berry patches, leave a good prospect to chase over to a more promising bush.

The result is oil country history. There has not been a development in the American petroleum field, deserted in haste by the get-rich and venturous class of pioneers, that did not later on give fortunes to the conservative men who "stuck" to their bush."

Oil City does not need to look far for an illustration of the truth of this assertion. There is the Columbia farm for instance—and only one of many similar examples. In its day and generation the Columbia farm owners, officers and employes lived in luxury. It had its own brass band, clubs and other conveniences for its employes that made the latter the envy of all men engaged in the same line of oil country effort.

The Columbia Oil Co. was organized by seven Pittsburgh men in 1860 to operate the Storey farm of 500 acres. It was incorporated May 1, 1861, with a nominal capital of $250,000. In the first year the farm produced 21,000 bbls.; in 1861, 90,000 bbls. In the first 10 years the production from this farm aggregated more than $10,000,000.

About the time the affairs of the company were at their zenith fresh water appeared in the wells and there were new pools of large capacity opened in the Butler, Armstrong and Clarion County Field. The exodus from old Oil Creek was immediate, and Columbia farm fell into the discard.

Later, when "settled production" appealed to investors, and it was realized that the first, second, third and gray sands of Venango County had wonderful staying powers many of the old-timers, weary of the strife and speculation attending getting a footing in the newer development in Pennsylvania, Ohio, Indiana and Illinois returned to old Oil Creek stamping grounds and renewed the production of abandoned wells, cleaning them out and by other approved processes reopening the close oil-bearing sands.

Columbia farm, about 12 miles north of Oil City, defied all attempts to exhaust the fresh water in its old wells and small fortunes were lost in this attempt under old methods, until about five years ago when George Brutche, of Petroleum Center, and John Turk, of Plumer, both practical drillers, formed partnership with Charles F. Smith, Pennsylvania Railroad baggagemaster of Oil City. The old farm had, by inheritance, became the property of Mrs. Smith. Drilling deepened the old holes to a considerable distance below the oil bearing sand. This extension formed a reservoir into which the fresh water flowed. The gas and oil by their lighter gravity remaining above made their pumping possible. Realizing that the more pumps working the quicker the fresh water flow would be overcome, the firm, Smith, Brutche & Turk, drilled a number of new wells on the farm, and within a year had a fine oil production and were making gasoline by compression. It is an open secret that this company has a standing offer of $1,000,000 for their property.

One of the latest demonstrations that the territory that gave birth to the great petroleum industry has not yet exhausted its capability of agreeably surprising the local wildcatter is the Carnahan well in the Queen sand, located about midway between Trunkeyville and Tidioute. C. H. Carnahan, who had been drilling tested territory in that section, satisfied with wells of a half barrel up, decided to drill a test below the first, second, third and gray sands to find the Queen sand in which wells of large production of oil and gas were found but which were not "stayers." At a depth of 1,050 feet the drill hit the Queen sand and the well started flowing at a rate of 40 bbls. a day. It was drilled deeper, shot and tubed about two weeks ago, and from then until now its production has averaged 100 bbls. daily. All of the land within miles of the gusher were under lease by Mr. Carnahan before he tried the experiment of drilling for the lower sand. With the production commanding a cash value of $3.25 a barrel there seems good reason to believe the current report among oil men that Mr. Carnahan is refusing offers for his wells and adjoining leases that will compare favorably with those offered for the gusher properties in the Mid-Continent and Texas fields of late development.

Forty-eight years ago "Widow" Sands, a woman of small means, but ambitious, invested her savings in drilling on a small farm immediately adjacent to Oil City on the south and fortune rewarded her. With decline in production came the decline in price and she sold to others who were content to take small earnings in operating the small wells. Immediately adjacent to this farm, Findlay S. Gates, native to that immediate section and practical oil man, decided to test a small acreage that had been condemned because dry holes or small wells had been drilled around it. He opened a well in the third sand at 1,050 feet in 1916 with an initial production of 450 bbls.

These are not special instances of lucky strikes. The old Oil Creek Field has furnished innumerable similar examples of big wells being struck in developing old territory. There are farms on which oil was discovered 40 or more years ago that are still profitable oil properties, for while the individual output of each well is small the holes are shallow, the sands apparently inexhaustable, and by the use of pumping power large numbers of these wells can be pumped from one central station and in a few hours each day.

Casinghead Riches

With the discovery that gasoline can be made in small plants through the compression of natural gas many hundreds of these plants have been installed on farms immediately adjacent to the city and their number is increasing rapidly. This is another incentive to reopen the old small wells and the new system of eliminating great floods of fresh water is aiding in the coming back of the old Oil Creek territory.

That there will be a general revival of drilling here shortly is announced by contractors and smaller oil producing companies. The territory has been thoroughly tested by past operations and the expense of completing a well in the old fields is not great, the lower sands being found at a depth of from 700 to 1,100 feet.

The old early oil towns have been wiped off the map in large numbers, but about their sites are found fertile well kept properties that are valuable both for agriculture and oil and gas production, making as a whole a section where peace and prosperity prevail unaffected by panics in industry or finance that so seriously affect other sections.

During last month there were 53 wells in Venango County, all of these practivally adjacent to Oil City. The total initial daily production was 83 bbls. There were also five wells producing gas in commercial quantities and only six dry holes.

There are more than 200 producing wells inside the limits of Oil City. That there are not more is due to laws restricting the distance to adjacent property from the location of the hole, shooting it after its drilling or transporting nitroglycerine through the municipal streets.

From 1859 to 1874, this section of Western Pennsylvania practically comprised all of the known oil territory of the United States.

The total production and average price for crude by years for that period were as follows:

Year—	Prod.	Av. Price
1859	3,500	$20.00
1860	450,000	9.60
1861	2,113,000	.52
1862	3,056,000	1.05
1863	2,831,000	3.15
1864	2,116,200	5.15
1865	2,497,700	6.59
1866	3,597,500	3.75
1867	3,347,300	2.40
1868	3,715,800	3.62½
1869	4,215,000	5.50
1870	5,659,000	3.90
1871	5,795,000	4.40
1872	6,539,100	3.75
1873	9,893,736	1.80
1874	10,926,945	1.15
Total	68,766,631	

It was in 1875 that the custom of buying at oil dumps and points of shipment direct was abandoned by the general adoption of pipe line certificates. When such a certificate was finally purchased by the refiner it was subject to a uniform charge for pipeage of the oil from the wells to the nearest shipping point. It was the use of these certificates that made the organization of oil exchanges along the same lines as the New York Stock Exchange possible and which continued in vogue until the uncertainty of speculation was followed by establishing the Seep Purchasing Agency, which established the current price based "on the markets of the world."

The second well drilled in Venango County got its production from the first sand. It was owned by Rouse & Mitchell and located on the Buchanan farm near Rouseville. When opened it produced at the rate of 8 bbls. daily. A few years later it was drilled to the third sand and its production increased to 300 bbls. a day. It was abandoned when fresh water appeared, but in 1871 it was purchased by Gould & Stowell cleaned out and set to pumping and started off at a rate of 4 bbls. daily.

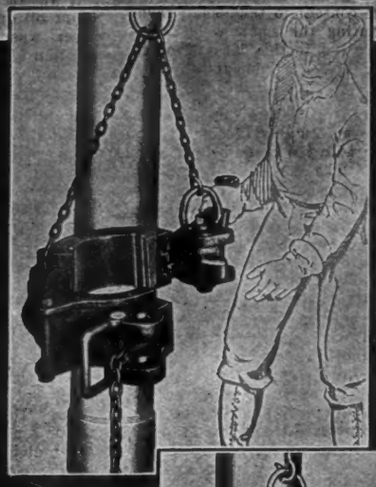
Records show that from the standpoint of steady production the oldest oil well in the world is located near Oil City—the Weaver—drilled in 1860 on the old Brewer & Watson farm on McClintock flats immediately north of the present limits of Oil City. It started flowing at the rate of 400 bbls. and for the first 10 years of its existence had an aggregate production of 40,000 bbls. During the past 52 years it is estimated that it has also produced 40,000 bbls. These statements are given by Joseph E. Robinson, this city, who has owned the farm for the past 30 years. The oil comes from the third sand and averages 8 bbls. a month.

Wanderlust Ruined Many

The whole eastern oil country from the fields of Allegany County, New York, down the famous 45 degree line, is filled with incidents of fortunes thrown away in the early days because men were possessed of the wanderlust, for one thing, and for another, could not see into the marvelous future of the oil industry. The great Bradford Field is one of the finest examples of a situation incorrectly doped-out, that the oil world offers. After the peak of production had passed in 1883 in that field other fields southwest and to the west began to attract Bradford oil men possessed with settled production. Bradford was never a gusher field. The sand yielded its riches slowly. Production was settling; it was felt that the field would never be what it had been. Newer fields were offering much larger returns, but with an increase in hazard, because in the Bradford district dry holes were a rare occurrence. Oil men sold out on a low market for what they could get, and went on to new discoveries and many of them went broke and never recovered. A small sized directory might be written containing the names of Bradford operators who deserted that field and lost all they had elsewhere. Some of them died of that intangible thing called a broken heart; others kept plugging away, but unsuccessfully. There are men in the

(Continued on Page 104)

"OILWELL" Tongs



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ADJUSTABLE-BALANCED

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¶ The Bit Liners are cam shaped, moving forward and in as the Handle moves forward—this forces the three tool-steel Bits to grip slowly, smoothly, and positively, without crushing effect.

¶ By using one set of Jaws, and one Handle, a number of different sizes of pipe, casing and tool joints can be operated by merely bushing the Jaws with the proper Plain and Bit Liners.

¶ "Oilwell" Tongs are accident proof—no hooks, catches, or automatic locks are used. Once the Locking Pin is inserted, the Jaws cannot be opened until the Pin is removed.

¶ "Oilwell" Tongs are self-balancing—the Suspension Chain is so mounted that the Tongs balance perfectly whether Jaws are open or closed. Tongs are made of electric steel throughout.

¶ *Write for the "Oilwell" Tongs Folder or get a copy at any of our 80 Branch Stores.*

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Oil Romance of the Wyoming Fields

Efforts of Pioneers Beset With Many Difficulties Including Vast Uninhabited Areas With High Production Costs. Fields Described.

By F. B. Taylor

Casper, Wyo., May 27.—Since that famous year of the completion of the Lewis and Clark expedition, the great territory, often called the Northwest, and sometimes the Rocky Mountain Northwest to distinguish it from the region across the Canadian border known as the Canadian Northwest, has called to adventurous spirits. The call is not easily understood; it is unlike the calls from other regions of our nation and it is never importunate or loud. Florida and the country along the Gulf send out an invitation to languorish ease. The South calls in a bluff, hearty, yet aristocratic, tone that reminds one of the friendly wave of the hand from a white columned portico; New England frankly shouts a dicker, while California is patently blatant through the prospectuses of her myriad children in the real estate business.

The call of the great plains and Rocky Mountain country is different from any of the others. It is low and deep in tone like the voice of the old guide in the late evening as he smokes his last pipe before the waning fire in front of the tent and the sable-purple dome above the pine forests seems to be just out of reach over the tops of the trees. Yet this call carries a warning, too, that is easily understood by those whose ears are attuned to hear the message. It is no country of the weak. Only the strong may survive and the past history that placed the bleached bones to mark the trails has shown the warning to be well worth heeding.

The call describes wealth in abundance, happiness to those who seek it and a paradise on earth to the seeker, yet it must all be earned. The voice of the great region seems to cry, "Come, test your strength, if you fail I will demand life itself; if you win, I shall serve even more than a wife."

Oil Men Answer the Call

First were the trappers who won against the great forces of Nature and took their toll of the pelts of Nature's wild things for which they in turn received their recompense in the eastern markets.

Then the miners who delved into the sides of the peaks and took therefrom the stores of gold and silver brought from the depths of the earth. Some are still here and the lone prospector with his burro or other pack animals may still be found, searching among the crags of the mountain fastnesses for more deposits of the precious metals. Most of the old mines are still in operation, but the business is now prosiac and much of the old-time glamor and romance is only to be found in the tales of the by-gone days.

Followed the rancher with his satellite, the romantic figure of the cowboy, and these are now slowly passing with the cowboy wearing unromantic blue overalls and only donning the time-honored chaps and high-heeled boots when he visits the neighboring town. Their day is closing fast before the onrush of the homesteader and the dry farmer who fences first the water holes and then the range itself, gradually cutting down the area until the most optimistic can see the end is in sight.

Still another class has heard the great call, however, for now has appeared a figure in blackened denim, greasy hands, reticent in his speech with strangers, yet withal standing square to the front and wresting from old mother earth the petroleum treasures she had stored in the porous sands deep down in the ground.

Had Early Beginning

He cares not for the petty quarrels between the rancher and the little homesteader; all that he asks is a lease to operate his intricate system of boring machinery or drills and of the surface he evinces but little interest after his geologist has told the result of the survey. He makes a test of the territory for which he pays out hard money to his workers and where fortune smiles, the oil man enriches the surrounding country and nearby towns in greater fold than the rich mining districts or the cattle ranches ever have.

Nor is the oil business in the Northwest a thing that has come in the night, far back in the early history of this part of the Nation, the early explorers reported petroliferous deposits and Captain Bonneville and General Fremont mention the existence of several oil springs where the emigrants were to find supplies of petroleum for their wagons in the days of "Forty-Nine." The Indians also knew of these springs and used the oil for greasing the knees and joints of their ponies, believing that the animals were benefited thereby to greater speed.

Captain Bonneville first saw the oil springs south of Lander, Wyo., in 1833, and reported them in his account of the exploration he made, but it was 50 years later that the first well was put down although from about the time the Union Pacific railroad was completed across the continent, the crude was marketed from the seepages and pits dug to collect it. The area has been developed into an oil property of worth and now has about 50 producing wells. It was purchased about four years ago by an English company and is now owned and operated by the Anglo-United Oil Fields Co. whose headquarters are in London.

P. M. Shannon Was Pioneer

However, the oil man did not appear to consider the Northwest country until about 1912 although many sporadic attempts had been made at different times to open up the petroliferous treasure box. As early as 1884, P. M. Shannon, well-known to the older oil operators of the early days on Oil Creek in the Pennsylvania hills as a prominent operator and mayor of Bradford, Pa., journeyed to the wilds of Wyoming and, after days of riding across the sage brush plains, he found a spot that held oil and looked favorable to his trained eye as a prospective field. With infinite pains and trouble he managed to have drilling material shipped from Pennsylvania to this point and also men to operate the outfit. He found oil, and Casper, about 50 miles south of the new strike became the refining center with the crude being hauled in wagons. The business languished, however, as the great Pennsylvania fields were then reaching their high peak and the new fields in Wyoming were so small in comparison that but little attention was given to the Northwest oil possibilities.

In the '90s, the geologists commenced to put forth theories as to the location of the petroleum pools and White of West Virginia, Warner and Orton of Ohio, Taylor and many others came forward with statements regarding the rock formations over the oil pools and fields and contended that these formations of the strata were similar along certain lines and that it was possible to locate oil fields thereby.

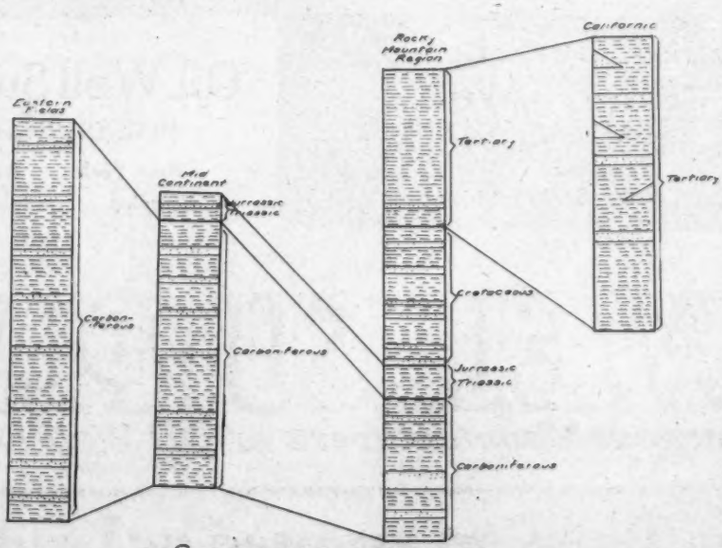
The years since then have proven the theories conclusively but in no other region does the geologist find Nature's building plans for the earth's crust laid out for his inspection as in the Northwest. This great region lies as a gently rising plain from Omaha westward, the flat prairies of Nebraska gradually merging into the rolling brown buttes of Wyoming until the mountain ranges lift into the blue and tumble the orderly sedimentary strata into confused wash deposits about their bases.

Periods Are Described

As every school boy knows, this globe was once made up of granites, schists, volcanic and other rocks. Erosion and other forces worked up the hard masses of stone into sand and mud and life appeared to build the limestone cliffs. The Northwest was an ocean with currents that deposited layers of mud and sand upon each other and the animal life in the sea passed through its cycles and died to become imbedded in the silt of the bottom and as the whole continent was lifted above the water, to form the strata thousands of feet in depth that surface the mother rocks of the period of granites and schists. Man came along and divided the time of this formative period into certain divisions which he named. The granitic period he called the Aezoic, then after some other divisions had piled upon the Aezoic which he called Devonian, Silurian, Cambrian, etc., there came an age of coal making tropical plants that he called Carboniferous, then there was the Jurassic and Triassic, closely allied to each other and above these was laid down the Cretaceous; on top of this came the Tertiary which surfaces the Northwest plains country in the main at this writing.

It would seem at first glance that an oil producing sandstone in the oil fields of Pennsylvania should be found in all other oil regions at about the same position in the general geological scale or column, but such is far from the actual facts. The strata widen and grow narrower sometimes in a few miles and the great divisions change in different parts of the country so that a knowledge of the stratification of one oil region is by no means a qualification to the same work in some other region.

In California the oil occurs mainly in the Tertiary deposits; in the great oil fields of Oklahoma it is found mainly in the Jurrassic, Triassic and upper Carboniferous; in the Pennsylvania and West Virginia oil regions the Carboniferous strata produce practically the whole of the petroleum there. In the Northwest or Rocky Mountain districts the Cretaceous produces the greater bulk of the oil found but the Tertiary and Carboniferous also contain oil deposits worthy of note as shown in the accompanying chart.



Comparison of Geological Horizons of the Four Principal Oil Regions

Fig. 2

Cretaceous Horizon Productive

In Figure 2 it will be noted that, taking the Rocky Mountain column as a base, the Carboniferous in the Pennsylvania fields has thickened until it occupies even more vertical footage than all the sedimentaries in Wyoming. In the Mid-Continent fields, the Carboniferous, Jurassic and Triassic occupy practically the whole of the column of interest to the oil operator while in California the Tertiary is the oil bearing period.

In the whole country, the Rocky Mountain region stands alone as a large area where petroleum is produced mainly from the Cretaceous horizons, in a few scattered points in the south, some oil has been found in the Cretaceous strata, but these spots are so few and far between that they are looked upon as oddities by the oil fraternity in general.

However, the Carboniferous here it also productive although the oil is of a different grade from that found in the Cretaceous horizons and also it is quite different from the oils found in the Mid-Continent fields and in the eastern oil regions in the Carboniferous strata. It is termed black oil by the operators and the name described it very well; in comparison with the Cretaceous oils it is a jet black color where the latter is green and it has many characteristics that makes its recognition an easy matter in contrast with other oils.

When P. M. Shannon came to Wyoming back in the eighties, he traversed a

(Continued on Page 98)

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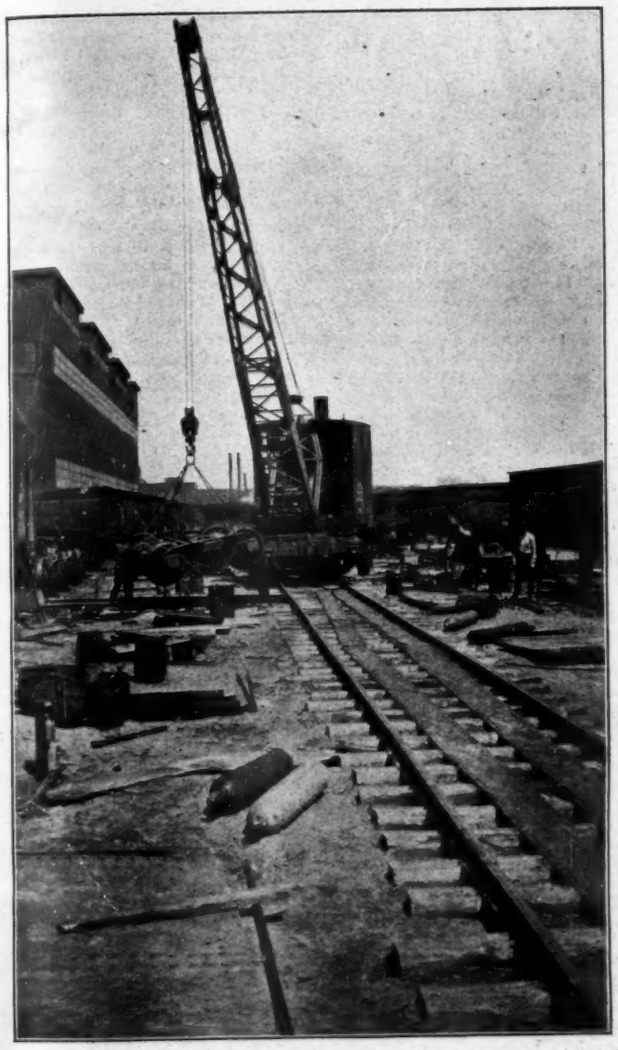

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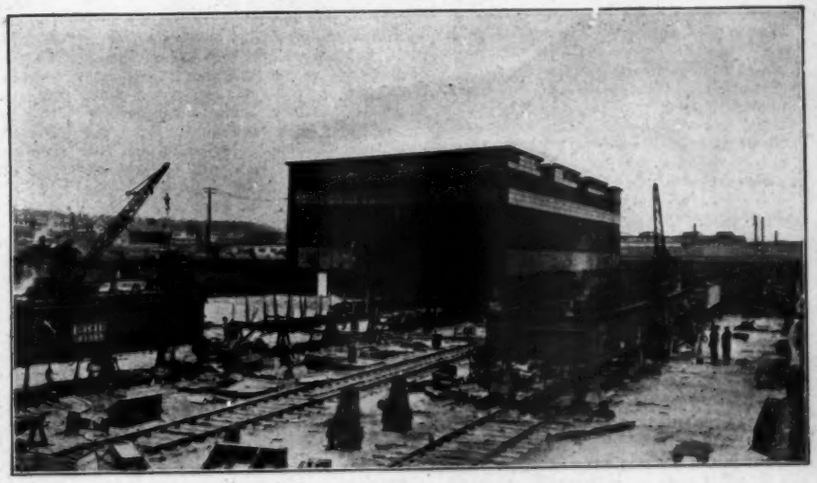

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Oklahoma-Kansas Oil Fields

By CHARLES W. WOOD

Recently opened pools in Pawnee, Okfuskee, Tulsa and Noble Counties show new wells of large output. One well in Garrison Pool, thought to be a failure, is drilled a little deeper and turns out to be a gusher. Bristow Field coming strong. Turkey Mountain district near City of Tulsa a surprise, with its big wells in deep sands.

TULSA, Okla.
May 29.

A big well on the west edge of the Continental Pool, Creek County, and the bringing in of the third producer in the new pool south of Okemah in Okfuskee County, were the two most sensational developments in the fields of Oklahoma this week.

The new well in the Continental Pool is Waite Phillips No. 2 Houston, SW cor. of Section 26-16-9. This well topped sand at 2,995 feet and at 3,005 feet the well made 215 bbls. the first hour. The second hour it flowed 170 bbls. and the third hour 150 bbls. It then began to slowly settle down to about 125 bbls. an hour.

This is a much better well than the same owner's No. 1 on the farm, which came in for about 500 bbls. daily and had only two feet of pay sand. The size of the new well was a surprise to those who had been watching the development of the pool.

The Turman Oil Co. and the Oklivania Oil Co. are the owners of the third well in the pool south of Okemah. This well is located in the CNL NE NE, Section 11-10-9, a direct south offset to the original well in the pool. At four feet in sand topped at 3,134 feet the well was flowing by heads at an estimated rate of 45 bbls. an hour. Up to almost the moment the well began flowing the owners thought they had a dry hole. At 3,133 feet, according to a steel line measurement, the bit was several feet below where it was expected the sand would be found according to the north offset well. Luckily the owners sent for another steel line, which showed that the measurement by the first line had been inaccurate by several feet. The well got the sand at about the same depth as the original well.

The bringing in of this well has created a congested situation that will probably not be relieved until the Sinclair Pipe Line Co. completes the laying of a 6-inch line to the new pool. The Sinclair is the only pipe line company with a line into the pool. It has a 2-inch line and if another well was brought in before the larger line is laid, it is doubtful if the company could take care of the production. The addition of this well to the pool together with the producer in the NW cor. of Section 12-10-9 belonging to Kemp and the Independent Oil & Gas Co. makes this new district look as if it might develop into one of the important pools of the State. The daily production of the pool is at present approximately 2,450 bbls. from three wells. The original well is still flowing at the rate of 250 bbls. daily and the Kemp-Independent well is making about 1,200 bbls. The Prairie Oil & Gas Co., drilling in the SW cor. of Section 1-10-9, is still about 200 feet above the sand and delayed with a fishing job.

Big Production Close to Tulsa

Three new wells in the Turkey Mountain district, 5 miles south of Tulsa and in Tulsa created a stir the latter part of the week. Two of the wells started at 1,000-bbls. daily or better, and the third one was shut down on top of the sand to wait for a pipe line to hook on.

The largest of the three, up to the present, is the Gladys Belle Oil Co.'s No. 3, in the SE quarter of Section 1-18-12. This well topped sand at 2,098 feet and at 4 feet in flowed 135 bbls. the first hour. Later it settled down to 1,600 bbls. daily. This is the largest well ever completed in the vicinity of Tulsa and may portend a drilling campaign almost within the city itself, as Tulsa and its vicinity is practically untested as to the deeper sands possibilties. The Gladys Belle Oil Co. recently completed a well in Section 2-18-12, that came in at the rate of 500 bbls. daily from what was believed to be a Wilcox sand.

West, Obins, Webber & Smith have a well in the CWL SW SW, Section 1-18-12, which was flowing at the rate of 1,000 bbls. daily from 2 feet in the sand on Saturday. It was expected to be drilled deeper Monday when the pipe lines are hooped on. In the same section Charles Page topped sand at 2,100 feet, where he immediately shut down for pipe line after only scratching the sand. The well was making about 3,000,000 feet of gas. Another well in this section should be in this week, is the Flesher Petroleum Co.'s No. 1, SW cor. of the section, which was drilling below 1,500 feet.

Big Well Holding Up

The big Dutcher sand well of the Roland Oil Co.'s in Section 2-15-8, Creek County, which is now over two weeks old and flowed wild at an estimated rate of 20,000 bbls. daily when the tools blew out and smashed the control head, was flowing at the rate of 9,400 bbls. hourly early this week. Very few wells in the Mid-Continent Field have equaled the performance of this well, and although it was impossible to gauge its rate of production when it was flowing wild, it is believed to have flowed at a greater rate than the Gypsy Oil Co.'s well on the Barnett lease at Cushing, which had heretofore had the reputation of being the largest well ever brought in in Oklahoma.

Twenty new operations have been started in the vicinity of the Roland Oil Co.'s well. One of them is interesting as it is the first rotary rig ever used in the Bristow district and the result of its use will probably be closely watched by oil men. It is the Carter Oil Co.'s No. 2 Cat, SE cor. SW NW, Section 2-15-8. Operations started in the section are as follows: Carter Oil Co.'s No. 3 Cat, SW cor. NW, rig building. C. L. McMahon's No. 1 Bear, NW cor. NE SW, rig. Roland Oil Co.'s No. 3, NW cor. SW, rig building. Wilcox Oil & Gas Co.'s No. 2 Harjo, NE cor. NW, fishing job at 3,038 feet. Same company's No. 5 Harjo, NW cor. NE NW, drilling below 650 feet. Same company's No. 3 Heneha, SW cor. NW NE, drilling below 700 feet. Same company's No. 4, SW cor. SE NW, rigging up. Same company's No. 5, SE cor. NW, rig. Same company's No. 6, SW cor. NE, rig. Same company's No. 7, NE cor. SE NW, rig in. Same company's No. 8, NW cor. SE NW, rig in. The following new work has been started in Section 3-15-8: White Oil Corporation's No. 1 Bear, NW cor. SE, rig. Burke-Hawfield's No. 1 Alex, NW cor. SE SE, rig. Gal-Vex Oil Co.'s No. 1 Alex, CNL NW SE SE, rig. Roland Oil Co.'s No. 1 Alex, spudding. Roland Oil Co.'s No. 1 Martin, SE cor. NW SE, location. Wilcox Oil & Gas Co.'s No. 2 Snap, SE cor. NE, rig. Same company's No. 3 Snap, NE cor., rig on the ground. Prairie Oil & Gas Co.'s No. 1 Starr, NW cor. NE, rig on the ground.

Bristow and Depew Benefited

Pat Wallace, special representative of The Oil and Gas Journal, who made a business trip to Bristow and Depew last week, writes that both those towns have benefited largely by the recent big operations in the southern part of Creek County. Bristow is the largest town of the two and it was near Bristow that the Wilcox Oil & Gas Co. drilled a well about a year ago that called special attention to the possibilities of big production close to the town. A lot of drilling was started and completed in the general neighborhood which brought an increase in population and wealth to Bristow and the place thrived. Depew meanwhile lay a little southwesterly and apparently just outside of the field, but this was changed suddenly when the Roland Oil Co.'s tremendous producer in Section 2-15-8 came in, as it is about as close to Depew as it is to Bristow. Depew is rejoicing over the fact that it is to be a real oil town with a gusher starting at 16,800 bbls. only three miles east of it and a vast amount of new work starting around it. New buildings are going up including a hotel, and well constructed and designed residences. The town claims a population of 2,000. It has two banks and a modernly built business section. A water works is being installed and is nearing completion. A number of operators and field men have established their residence in Depew and they have met with a hearty welcome from the enterprising townspeople who have ambitions of a city of 5,000 by 1925. Both Bristow and Depew, which are 8 miles apart, are on the Frisco railroad between Tulsa and Oklahoma City. Bristow is one of the busiest towns in Oklahoma. It is a railroad junction point and is the center of the Bristow Field, which includes Townships 16-10, 15-10, 14-10, 16-9, 15-9 and 14-9, 16-8, 15-8 and 14-8. The field takes in nine townships or a territory equal to 324 square miles. in which there is room for a great oil development which is well on the way and perhaps nowhere near its peak in productiveness. The Bristow district at this time has a production estimated at 56,000 bbls. a day.

Tonkawa Production

A recent production report on the Tonkawa Field in Noble County credited the wells in the field with 11,795 bbls. a day, including the new flush production. The Comar Oil Co.'s No. 1 See, Section 15-24-1w, was credited with 1,176 bbls.; No. 2 to be deepened eight feet in the 2,100-foot sand; No. 2-A, 2,050 bbls.; No. 5, 136 bbls.; No. 6, 1,091 bbls.; No. 7, 1,600 bbls.; Amerada Petroleum Corporation's No. 1 Smith, Section 15-24-1w, 550 bbls.; No. 4, 960 bbls.; No. 5 has 5,000,000 feet of gas; Marland & Cosden's No. 1, school land, Section 16-24-1w, 1,850 bbls. Southwestern Petroleum Co.'s No. 1 East Murray, Section 10-24-1w, 525 bbls.; No. 6, 227 bbls.; No. 8, 1,500 bbls. White Eagle Oil & Refinery Co.'s No. 1, Notney, Section 10-24-1w, 30 bbls. Comar Oil Co.'s No. 1, Rudolph Ruzek, Section 3-24-1w, 100 bbls.

Another well in the field which should be completed this week is the Comar Oil Co.'s No. 1 Ruzek, SW cor. SE, Section 3-24-1w, which was shut down for tankage in the deep sand at 2,662-64 feet. The White Eagle Oil & Refining Co. missed production in the 2,100-foot sand in No. 2 Huhka, SW cor. SE, Section 10-24-1w, getting only a small showing in it. They are now drilling for the deep sand.

Second Mannford Well

The second well in the new pool opened by Gillette and others was brought in this week, it being the McMann Oil & Gas Co.'s well in the SE cor. NW, Section 36-20-8. It is a direct north offset to the original well. Sand was found at 2,971 feet and it started at the rate of 500 bbls. daily. Sand was found much lower than in the original well, which topped it at 2,956 feet, and started at 1,000 bbls. It is in Pawnee County.

Brock District

In the Brock district, Carter County, the Amerada Petroleum Corporation has made locations for three more wells. They are No. 3 F. Baptiste, C SW SW, Section 21-5s-1e, an eighth of a mile west of the company's No. 1 on the farm, which is reported still flowing at the rate of 1,000 bbls. daily. The company has located No. 45 Sammy Baptiste NE cor. SE, Section 20-5s-1e, and No. 6 in the NW cor. SE SE, Section 20-5s-1e.

Another important location in this district is the Crosbie and others' operation in the SW cor. SE, Section 16-5s-1e, three-quarters of a mile northeast of production. It will be drilled with standard tools and timbers are already in for the rig.

Fail to Extend New Pool

The new pool opened by Jillson and others in Okmulgee County, Oklahoma, near the town of Schulter, has only one producing well to date, other wells having failed to find oil in the sand at 1,900 feet, where the Jillson well got about 500 bbls. production the first 24 hours. The Waite Phillips test in the CSL SE NE, Section 18-12-13, drilled to a deeper sand and had a showing from 2,053 feet. Jillson and the Gilcrease Oil Co.'s No. 3, CNL NE SE, Section 18-12-13, also failed to get much of a showing in the 1,900-foot sand and will drill deeper.

This part of Okmulgee County is treacherous in its formations, and somewhat similar to the Bald Hill district. It now looks very doubtful that a pool of any size will be developed as a result of the Jillson find.

Carter County

In the Hewitt district, Carter County, the Hudson Drilling Co. was drilling below 1,500 feet in No. 4 Hart, SW cor., Section 25-4s-2w. The Humble Oil & Refining Co.'s No. 12 Walker-Vorhees, C NW NE SE, Section 9-4s-2w, started at 100 bbls. naturally from a total depth of 1,975 feet. The same company is swabbing 75 bbls. daily from No. 11 Hewitt-Walker, C SE SE SW, Section 9-4s-2w, total depth 2,015 feet. The Carter Oil Co.'s No. 8 Woodruff, C SW NW, Section 15-4s-2w, is a 75-bbl. producer from a total depth of 2,008 feet. The Carter Oil Co.'s No. 23 Woodruff, NW cor. SW NW, Section 15-4s-2w, is making 80 bbls. on the swab from 2,029 feet. The Wolverine Oil Co.'s No. 102, C S half NE NW, Section 22-4s-2w, is swabbing 60 bbls. daily from 1,895 feet.

Catoosa's Deep Test

Scouts are keeping their eyes on the wildcat test of J. W. Irwin and associates in the center of Section 23-20-14, Rogers County, just 11 miles east of Tulsa, along the St. Louis-San Francisco Railway, which is down below 3,330 feet this week and still drilling in red sand stone, with a hole full of water from an upper sand. Before leaving for Minne-

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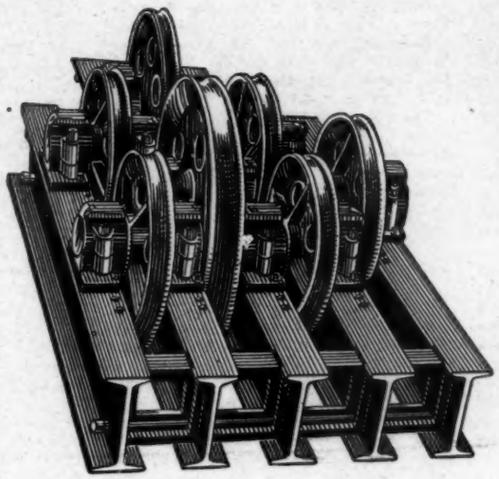

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apolis late last week, Mr. Irwin said that should the present test prove a failure in the deep formation, that it would be plugged back, the water cased off and the gas sands encountered tested. These were found at 3,050, 2,100 and 1,700 feet respectively. A chloroform test was taken of the material brought up by the bailer, and it showed an oil sand was penetrated at 2,540-2,560 feet. The red sand was said by geologists to be thoroughly saturated with oil. The present test was not originally planned as a deep one, but with the shallow formations dry, Mr. Irwin, after consulting geologists, decided to test out the deeper levels

Stephens County

In the Duncan Field, Stephens County, Ware and others were building a rig for No. 1 Leonard, NE cor. SE SW, Section 6-1s-8w. The Magnolia Petroleum Co. was moving in for No. 3 Johnson, CSL SE NW SW, Section 18-1s-8w. The same company was rigging up a rotary for No. 4 on the farm, C SE NW SW. Lewis & Keaton were drilling below 100 feet in No. 2 Wilkinson, NE cor. SE SE, Section 27-1s-8w. Sullivan and others were drilling below 200 feet in No. 7 Nelson, CWL SE NE, Section 28-1s-8w. Westheimer & Daube completed a rig for No. 11, CNL NE NE, Section 4-2s-8w. Dieks and others had a rig up for No. 5 Battiest, CNL NE SE NW, Section 13-2s-8w.

Okfuskee County

In Okfuskee County Foley & Vorhees have spudded in with a machine No. 1 Bear, NE cor. NW NE, Section 19-13-10. Kimbley and the Atlantic Oil Producing Co. got 3,000,000 feet of gas from 360 to 375 feet in No. 1 Phillips, NE cor. SW NE, Section 32-13-10. Cusac and others completed a rig for No. 1 Mikey, NE cor. SE, Section 13-12-10. C. W. West and others have staked a location for No. 1 Perry, SW cor. NE SW, Section 7-11-9.

Several new operations have been started in the vicinity of the Garrison Pool. The Prairie Oil & Gas Co. had a rig on the ground for No. 2 Grayson, SE cor. SW SW, Section 1-10-9. Kemp & Jennings were building a rig for No. 1 Pigeon, NE cor. SW SE, Section 2-10-9. The Midwest & Gulf Oil Co. had a rig on the ground for No. 3 Pigeon, SE cor. Section 2-10-9. The Turman Oil Co. and the Oklivania were building a rig for No. 3 Brooks, NW cor. NE NE, Section 11-10-9. The Independent Oil & Gas Co. and others have a rig on the ground for No. 3 Cully, NE cor. NW NW, Section 12-10-9, and were building a rig for No. 4, SE cor. NW NW. Kemp & Jennings had a rig in for No. 1 Cully, NW cor. SW NW, Section 12-10-9. The Foster Oil Co. had a rig on the ground for No. 1 Cully, NW cor. NE NW, Section 12-10-9.

West of the Lyons Pool, A. D. Morton had a rig up for No. 2 Grayson, CEL SE SE, Section 23-11-11. South of the pool the Barbara Oil Co. had a rig on the ground for No. 5 Barnett, CNL NE NW, Section 36-11-11.

Okmulgee County

In Okmulgee County the Independent Oil & Gas Co. was drilling at 2,560 feet in No. 2 Berryhill, SW cor. NE, Section 1-14-12. Ernest & Harris have a 40-bbl. well in No. 2 Fixico SE cor. NE NW, Section 23-14-12. The Shaffer Oil & Refining Co. has rig and tools in for No. 7 Adams, SW cor. NW SE, Section 23-14-12. E. M. Balls was drilling at 600 feet in No. 2 Dan, CWL SW NE, Section 35-14-13. The Elm Oil Co. was drilling at 1,200 feet in No. 12 Rentie, SW cor. SE SW, Section 13-14-14. J. G. Haas and others were drilling at 200 feet with a machine in No. 7 Bradford, SE cor. NW SW, Section 19-14-14. The Simplex Oil Co. was drilling at 700 feet in No. 8 Bradford, C E half SE SE, Section 19-14-14. The Kansas City Oil Co. had a rig up for No. 12 Flint, SE cor. NW SW, Section 26-14-14.

Osage County

In Osage County the Clem Oil Co. was rigging up to drill No. 8, CWL SW SW, Section 25-23-10. Waite Phillips has a machine up for No. 4, CSL SE, Section 26-23-10. C. W. Titus was rigging up a machine for No. 2, CNL NE NE, Section 25-23-10, and was moving in a machine for No. 3, SW cor. NE. The Texas Co. was drilling below 800 feet with a machine in No. 8, CNL NW NW, Section 36-23-10.

Peters and others were rigging up a machine for No. 1, CNL NW, Section 2-22-11. The Inland Oil Co. and others have a machine up for No. 14, CWL SW, Section 34-22-12.

In the Burbank Field the Prairie Oil & Gas Co. has started four new wells in the northeast quarter of Section 30-27-6. The company has dug a cellar for No. 13, C NE SW NE, was digging a cellar for No. 14, C SE NW NE, completed a rig for No. 15, C SW NE NE, and completed a rig for No. 16, C NW SE NE.

Munn Bros. had the rig and tools in for No. 2, C S half NE, Section 28-20-12.

The Tidal Osage Oil Co. was rigging up to drill No. 26, C NW NW, Section 34-22-10. Haziette and others were rigging up No. 12, C NE SW, Section 26-23-11. Ed Lee and others were drilling blow 1,600 feet in No. 1 Zickafoose, CSL NW SW, Section 36-20-9.

Creek County

In the Bristow Field, Creek County, C. G. Tibbens has completed a rig for No. 2 Yarhola, SW cor. SE SE, Section 34-15-8. E. R. Black has a rig on the ground for No. 2 Bruner, SW cor. SE SW, Section 1-14-10.

The Josey Oil Co. completed a rig for No. 1 Tiger, NW cor. NW NW, Section 1-16-9. Wilcox & Oswalt had a rig in for No. 1 Self, NE cor. SE SW, Section 3-16-9. The Prairie Oil & Gas Co. has spudded No. 1 Durant, NE cor. SW SE, Section 18-16-9. The Roland Oil Co. has a rig up for No. 3 Durant, NW cor. SE SE, Section 18-16-9. The Texas Co. has a rig up for No. 6 States, NW cor. SE, Section 21-16-9.

In the Continental Pool, Waite Phillips has a rig up for No. 2-A, twin location, NW cor. SW, Section 22-16-9. The Twin State Oil Co. was building a rig for No. 10, SW cor. SE SE, Section 22-16-9, and had a rig in for No. 11, NE cor. SE. Waite Phillips was building a rig for No. 2 Micco, NW cor. SW, Section 23-16-9.

The Margay Oil Co. has spudded No. 1 Vaughn, CWL NW SE, SW, Section 33-16-9. O'Rourke and others have a rig up for No. 4 Vaughn, NE cor. NW SW, Section 33-16-9. Waite Phillips was drilling below 280 feet in No. 1 Vaughn, NE cor. SW SW, Section 33-16-9. The Prairie Oil & Gas Co. had a rig in for No. 5 Shoals, SW cor. NE, Section 33-16-9, a rig was being built for No. 6, SW cor. NW SE, and a rig was on the ground for No. 7, NW cor. SW SE.

Bond and others completed a rig for No. 2 Tiger, CSL SW NW SW, Section 9-15-9.

In the Eastern Bristow district Stinson and Mathews have a rig up for No 1 Unallotted, SE cor. NW NW, Section 33-15-10.

Tulsa County

In Tulsa County Weaver and others were drilling at 1,615 feet in No. 1 Dasher, NW cor. NE SE, Section 3-19-9. The Oklahoma Central has spudded No. 3 Tiger, CNL SW SE, Section 18-19-10. Burton and others have a rig on the ground for No. 1 Timothy, NE cor. NW, Section 22-19-10. Mitchell & Sweeney were drilling at about 500 feet in No. 1 Berryhill, NW cor. NE SW, Section 21-19-11. The Cato Oil Co. abandoned No. 5 Cato, CSL SW NW, Section 29-19-11, dry at 2,575 feet.

The Gladys Belle Oil Co. was drilling below 1,800 feet in No. 6 Brady, NE cor. SE SE, Section 2-18-12. They had a showing for about 20 bbls. in the Glenn sand at 1,439-51 feet.

Payne County

In Payne County the Twin States Oil Co. has spudded No. 1 Sherman, NE cor. SW, Section 14-19-5.

Pawnee County

In Pawnee County the Stone Oil Co. found sand at 2,852-84 feet in No. 1 Redding, SW cor. NW, Section 15-20-6, shot with 5 and 10 quarts, after which the well swabbed at the rate of 12 bbls. They were pulling pipe to drill deeper. The Madelin Oil Co. have a 25-bbl. well after the shot in No. 1 Bill, SE cor. NW NW, Section 21-20-6, sand 3,083-97 feet. They will put it on the pump. The Westerly Oil Co. has a rig up for No. 1 Stocker, NE cor. SE, Section 33-20-6. The Grieves Oil Co. has a 25-bbl. well in No. 3 Peck, NE cor., Section 36-21-7, sand 2,422-46 feet.

Noble and Garfield Counties

In Noble County, Wrightsman and others have a rig on the ground for No. 1 Barnes, NE cor. SW SE, Section 25-23-2e. The Alcorn Oil Co. has a rig on the ground for No. 1 Dailey, SW cor. Section 32-22-3e. The Rabbits Foot Oil Co. completed a rig for No. 4 Heim, CNL NE NE NW, Section 36-22-4w.

Kay County

In Kay County the Producers & Refiners Corporation have timbers on the ground for No. 1 Annis, NE cor. SE, Section 5-26-4e. The Atlantic Oil Producing Co. now has No. 1 Soldani, NE cor. SW SW, Section 13-26-4, where it is making 5 bbls. daily.

Morris & Haun had a machine in for No. 1 Hartzman, SE cor., Section 2-26-1w.

Grant County

In Grant County, Waldo & Buckle have made a location for No. 1 Haltzelon, SW cor. SE, Section 35-28-7w.

Okfuskee County

In the Lyons Pool, Okfuskee County, the Gypsy Oil Co. brought in No. 9 Jefferson, CNL SW, Section 13-11-11, sand 2,686-87 feet, from where it was flowing at the rate of 40 bbls. daily and showing some water. Waite Phillips has a 75-bbls. well in No. 6 Barnett, SE cor. NW NE, Section 13-11-11, sand 2,442-46 feet. Lyons & French brought in No. 4 Ingram, NE cor. SE NW, Section 13-11-11, and the well was flowing at the rate of 400 bbls. after a shot in sand 2,685-92 feet. The Minnehoma Oil Co.'s No. 5 Field, SE cor. NE NE, Section 24-11-11, has been completed as a 260-bbl. well from sand topped at 2,650 feet. The Phillips Petroleum Co.'s No. 7 Field, SE cor. NE, Section 24-11-11, is a 700-bbl. well from the deep sand at 2,638-41 feet. The same company's No. 8 on the lease is completed from sand 2,660-63 feet and flowing at the rate of 600 bbls. It is located in the SW cor. SE NE. The Kingwood Oil Co.'s No. 6 Barnett, CWL NE SE, Section 24-11-11, sand 2,422-34 feet, is a 90-bbl. well. The Gypsy Oil Co. plugged No. 2 Barnett, NW cor. NE NE, Section 25-11-11, back to the shallow sand from 2,709 feet and completed it as a 12-bbl. well.

Muskogee County

In Muskogee County, Detrick & Logan's No. 1 Cumseh, SW cor. NE, Section 26-13-15, is completed and started at 175 bbls. daily from 2,179-84 feet. Swanson and others abandoned No. 4 Grayson, C SW SW, Section 24-15-15, with a bad hole at 2,145 feet. M. M. Brown completed No. 1, NW cor. SW SE, Section 28-15-15, dry at 1,960 feet.

In McIntosh County, Prince & Anderson's No. 2 Smith, NW cor. SW SE, Section 21-21-14, is a 6,000,000-foot gasser from 2,181-82 feet.

Creek County Completions

In the Eastern Bristow district, the Cosmos Oil Co. completed No. 16 Clinton, SW cor. NE SE NW, Section 15-15-10, sand 2,558-89 feet, the well starting at the rate of 100 bbls. daily after the shot. The Wilcox Oil & Gas Co. abandoned No. 2 Ralston, NE cor SE NW, Section 6-16-10, at 3,165 feet after drilling into water.

In the Bristow district, the Jomac Oil Co.'s No. 2 Williams, SW cor. SE NE, Section 21-16-9, is a 25-bbl well after the shot in sand 2,965-72 feet. The Sartin-Phillips' No. 5 Williams, SE cor. NE SW, Section 22-16-9, was flowing 20 bbls. hourly from 2,907-20 feet. The Transcontinental Oil Co.'s No. 2 Micco, NW cor. SW SW, Section 23-16-9, was flowing at the rate of 1,600 bbls. daily from 2,965-71 feet. The Gypsy Oil Co. and Johnson have a 100-bbl. well in No. 13 Luckey, C NW SE NE, Section 28-16-9, sand at 2,829-2,932 feet. The Twin State Oil Co.'s No. 2 Shoals, NE cor. SE NW, Section 28-16-9, is a 260-bbl. well from 2,979-80 feet. Klingsmith and others' No. 1 Roberts, NW cor. NE SE, Section 32-16-9, drilled into water at 2,989 feet and has been abandoned. The Wilcox Oil & Gas Co. got a hole full of water at 3,165 feet in No. 2 Ralston, NE cor. SE NW, Section 6-16-10, and has abandoned it.

Okmulgee County Completions

In the Mounds district, Okmulgee County, the Nowata Oil & Refining Co. has abandoned the test in the CNL NW NE SE, Section 34-16-11, at 1,958 feet. It was shot with 60 quarts, but did not respond. The Underwriters Oil Co. and others', No. 1 Leath, SE cor. SW NW, 35-16-11, drilled into water at 2,865 feet and has been abandoned.

In the Beggs district, the Indiahoma Refining Co.'s No. 1 Belisle, SE cor. Section 16-15-11, is a 40-bbl. producer from 2,100-9 feet. The same company's No. 2 Lee, CSL SE NW, Section 22-15-11, was shot with 40 quarts and was flowing at the rate of 40 bbls. daily from 2,087-2,120 feet.

Jordan & Ashley drilled into water at 2,695 feet in No. 3 Colbert, CSL SW NW, Section 10-14-13, at which depth the well was abandoned. The Charcon Oil Co. has a 20-bbl. well after the shot in No. 3 Adams, SW cor. NE NE, Section 12-14-13, sand 1,808-28 feet. The Dunn Drilling Co. has abandoned No. 2 Kirnels, C NE NW SW, Section 13-14-13, total depth 2,040 feet. Detrick and others have a 180-bbl. well in No. 4 Cumsac, SW cor. NE, Section 26-13-13, sand 2,179-84 feet. The Barbara Oil Co.'s No. 8 Harjo, NE cor. SW SW, Section 30-13-13, is a 5-bbl. well after the shot in sand 2,150-58 feet.

W. B. Pine completed three big wells in the Tiger Flats district. No. 3-A Jacobs, CEL SE SE, Section 33-12-12, is a 300-bbl. well from 2,304-74 feet after the shot. The same owners' No. 2 Holmes, CSL NE SE, Section 33-12-12, was flowing at the rate of 500 bbls. daily from 2,415-26 feet. The same owners' No. 3 Holmes, SW cor. NE SE, Section 33-12-12, was flowing at the rate of 750 bbls. daily from sand 2,402-14 feet. The Central National Oil Co. has completed No. 1 Grayson, NW cor. SW, Section 17-12-13, sand 1,977-96 feet, and the well was flowing at the rate of 22 bbls. daily after the shot.

The Parent Oil Co.'s No. 2 Bruner,

R. C. MAGEE ONLY OIL MAN EVER PURSUED BY 100-BBL. TANK—RACE FOR LIFE

It is recorded in oil country history that oil men have been chased by the sheriff, by the constable, by angry wives, by bulls, by dogs, and by almost anything else that indulges in the chase, but few of them have had the experience of R. C. Magee, an oil producer of Nowata, Okla.

Magee was chased by a 100-bbl. tank!

Magee was inspecting a lease in northeastern Oklahoma during a recent storm. A 100-bbl. tank located on the side of a hill, and behind which he had taken refuge, was suddenly caught by the wind and turned over, and at once it began rolling. Mr. Magee sped down the hill and the tank, with a 50-mile breeze behind it, sped after him. By a clever dodge he succeeded in eluding it, and the tank rolled for more than a mile before it came to a halt, spilling oil the entire length of the route.

FRICK-REID SUPPLY CO.

TULSA-PITTSBURG

Dr. Brown and the Indians Started the First Oil Boom in Kansas.

To Kansas goes the honor of being the first State to attract the big operators of the East to this section and make possible the development that later opened up the great Mid-Continent oil fields.

Indians and pioneers are said to have known of oil seepages in Kansas as early as the early fifties. Dr. C. W. Brown, after publishing a book on "oil seepages," undertook to find the fountain head of the seepages evident in Miami County, and drilled the first well in Wyandotte County, near Palo. Records shows this well produced a small amount of oil and gas.

It was not until 1882, however, that oil in commercial quantities was found in this locality.

In 1892, ten years later, W. T. Hills drilled two wells in Wilson County, the results of which really caused the influx of eastern capital and oil men—and the birth of the Mid-Continent oil fields.

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FOR THE OIL FIELDS

CEL NE NW, Section 8-13-15, was shot in sand at 2,194 feet and was flowing at the rate of 15 bbls. Jones and others abandoned No. 1 Beaver, SW cor. NW SW, Section 20-13-15, at 2,955 feet. The Malcona Oil Co. shut in 2,000,000 feet of gas from 595 feet in No. 1 Colbert, SE cor. SW NE, Section 14-14-14. R. C. Cope has abandoned No. 5 Colbert, CSL SE NE, Section 22-14-14, at 1,910 feet. The Kingwood Oil Co.'s No. 2 Wright, CSL SE NW, Section 22-14-14, sand 1,759-94 feet, started at 75 bbls. The Barbara Oil Co.'s No. 9 Hajer, SW cor. NE SW, Section 30-13-13, is a 5-bbl. well from sand 2,105-50 feet.

The Okliana Oil Co. abandoned No. 2 Scott, CEL NW NE, Section 18-11-12, at 1,585 feet. The Gypsy Oil Co. and the Phillips Petroleum Co. have a 480-bbls. well in No. 2 Barnett, NW cor. SW, Section 19-11-12, sand 2,682-85 feet. Vierson and others' No. 2 Furr, SE cor. SW NW, Section 22-11-12, has been abandoned at 3,007 feet. Jillson and others shut in 6,000,000-feet of gas in No. 2 Brown, CEL NE SE, Section 18-12-13.

EXTEND CURRIE POOL, NAVARRO COUNTY, TEX.

(Continued from Page 5)

In the California fields operators are becoming worried over the steadily increasing crude stocks, and the phantom of a cut in price disturbs their slumbers. Recently opened fields in the state that are increasing in production as their development goes on are responsible for this oversupply of crude. The Shell Co.'s No. 1 Dobyn, at Long Beach, is started at 3,155 bbls.

In the Mexican fields the Mexican-Sinclair Oil Co.'s well in the South Field broke loose long enough to show that it was capable of producing 15,000 to 20,000 bbls. a day. La Corona Petroleum Co.'s No. 2, Lot 2, Chiconcillo, is rated at 12,000 bbls. It is south of the San Miguel development.

In Illinois a 60-bbl. well was completed on a town lot in Centralia. In Western Kentucky 51 wells were completed, 34 of which were producers, but no very large ones for that field. Two 100-bbl. wells were drilled in the No Name Pool in Allen County, four miles southwest of the Scottsville Pool. In the Pennsylvania fields a 100-bbl. well was completed by the T. W. Phillips Oil & Gas Co., No. 4 Mallinee, in Allegheny County, and a 100-bbl. was finished in the Tidioute district in Warren County. In West Virginia and Southeastern Ohio there was little worthy of special mention.

No important news came out of Wyoming in time for this review. The Kevin well, in northern Montana, is discounted by several operators who returned to Casper from Kevin. They declare that thus far the well's showing has been too small to make it important. It has never been fully tested, however.

North Louisiana—Arkansas

By M. L. VAUGHN

Gasser north of El Dorado, Ark., still blowing wild about 50,000,000 cubic feet daily. Production of North Louisiana and South Arkansas Fields decreased during week to 124,407 bbls. daily, Haynesville declining 2,915 bbls. daily. Completions in Haynesville, numbering 26, had initial production of 6,256 bbls. Drilling active at El Dorado and pool is being extended south.

SHREVEPORT, La.
May 29.

The wild gasser of the Oil Operators Trust, 8 miles north of El Dorado, has continued to hold the center of the stage in Arkansas operations during the past week. The pressure had been slowly decreasing for two or three days and it was thought the well would be dead within a few hours, when it suddenly sprang into new life and almost cost the lives of two oil men who were standing near the crater's mouth. Gas, rocks and sand are again being thrown over 100 feet in the air and the pressure seems to be as strong as ever. The volume of gas is now estimated at 50,000,000 cubic feet daily and the pressure is so strong that the boiler and part of the rig which fell into the crater have been lifted several feet on different occasions.

On May 23, the well became ignited from friction for the second time and the glare from the flames lighted the territory for miles around. At times a heavy black smoke coming from the crater led the spectators to believe that the well was producing oil, but experienced operators are of the opinion that the dense smoke is caused by the presence of a lignite formation.

The well is located in Section 8-16-15 on the Murphy lease, 8 miles north of El Dorado in Union County. It was drilled by John L. Anderson for the Oil Operators Trust of Houston, Tex., and blew in at 2,025 feet. Leasing activity continues to increase in the locality of the well and several of the larger companies are buying considerable acreage. The Pure Oil Co. has purchased an 80-acre lease southeast of the well and will commence drilling on it in a few days. The Natural Gas & Petroleum Co. is making arrangements for a test in the SE SE quarter of Section 8-16-15, and in the NW SE quarter of Section 16-16-15, Eddie Jones is preparing to drill a test.

The daily average production of the North Louisiana and South Arkansas fields show a decrease of 2,308 bbls. under last week's figures. El Dorado runs averaged 36,030 bbls., an increase of 950 bbls., and Bellevue increased slightly. Haynesville production dropped 2,915 bbls. daily, the production of the old wells continuing to decline rapidly. During the past month 99 wells were completed in the Haynesville Field with only 35,430 bbls. initial production, while the month before there was 51,165 bbls. from 75 completions. El Dorado reported 45 completions for the month with production averaging 5,635 bbls. Bellevue brought in 15 wells, three of which were failures, adding 1,845 bbls. production. Fewer failures were recorded the past month than for some time and out of 173 completions only 13 were unsuccessful, seven of which were wildcat operations. Total production for the past week of north Louisiana and south Arkansas averaged 124,407 bbls. daily, distributed as follows:

	Bbls.
Caddo, light	8,130
Caddo, heavy	3,610
De Soto and Red River	7,030
Elm Grove	1,160
Homer	16,480
Haynesville	49,735
El Dorado	36,030
Bellevue	2,232
Total	124,407
Last week	126,715
Decrease	2,308

Haynesville

Twenty-six wells were completed in the Haynesville district during the past week with a total initial production of 6,256 bbls. Most of the wells were small pumpers with only one well over 500 bbls. Twelve of the completions were located in the western extension of the field with only one failure. Smitherman & McDonald abandoned their well in the W. S. Sanders lease in Section 19-23-8 at 2,820 feet with no test made.

The largest well of the week was brought in by the Ohio Oil Co. on the J. T. Waller lease, Section 14-23-8. The well is No. 12 and came in with an estimated production of 2,000 bbls. daily at 2,825 feet. Section 18-23-8, in the western extension of the field yielded six producers. The Amerada Petroleum Co. completed No. 5-B Baucom, flowing 425 bbls. at 2,793 feet. Belchic & Laskey made a 300-bbl. pumper of No. 3 Lee at 2,775 feet. Glassell and others' No. 1 Gines, swabbing 108 bbls. the first day from 2,763 feet. Jones and others' No. 1 Miller is swabbing 250 bbls. at 2,793 feet. The Simms Oil Co. made a 288-bbl. pumper of No. 1 Benefield at a depth of 2,793 feet, and the Standard Oil Co. completed No. 1 Lee, flowing 200 bbls. at 2,770 feet.

In Section 8-23-8, a little north of previous production, A. C. Reese completed his first well on the School lease, swabbing 280 bbls. at 2,828 feet. South of Section 18 in Section 19-23-8, the Roxana Petroleum Co. made a 50-bbl. pumper of No. 1 Camp, located in the SE SE qaurter of the section. The well was completed at a depth of 2,773 feet.

The Arkansas Natural Gas Co.'s No. 244 Knox is swabbing 105 bbls. at 2,788 feet, Section 17-23-8. In the same section Richardson and others completed No. 4 Miller, pumping 240 bbls. at 2,781 feet and the Transcontinental Oil Co. brought in No. 3 Lee, swabbing 390 bbls. at 2,773 feet.

The Gilliland Oil Co. made a 60-bbl. pumper of No. B-6 G. W. Taylor at 2,792 feet, Section 14-23-8, and in the adjoining section 13-23-8 they brought in No. 1-A F. M. Taylor, pumping 270 bbls. at 2,847 feet.

The Ohio Oil Co. completed 12 wells during the past week with a total initial production of 3,289 bbls. daily. In Section 15-23-8, they brought in No. 6 T. W. Sherman, pumping 135 bbls. at 2,835 feet; No. 1 G. W. Taylor, pumping 100 bbls. at 2,827 feet; No. 5 on the same lease pumping 40 bbls. at 2,810 feet; No. 6 pumping 53 bbls. at 2,707 feet, and No. 9 pumping 142 bbls. at 2,861 feet. In Section 22-23-8, they made a 94-bbl. pumper of No. 1 Beene at 2,780 feet and brought in No. 1 J. L. Bond, pumping 100 bbls. at 2,782 feet. Their No. 16 R. P Bond came in flowing 225 bbls. by heads at 2,775 feet, Section 21-23-8, and No. 18 on the same lease was completed flowing 130 bbls. by heads at 2,779 feet.

In Section 16-23-8 they completed No. 4 Goodwin, flowing 130 bbls. by heads at 2,779 feet. In Section 14-23-8 they made a 100-bbl. pumper of No. 3 Silas Taylor at 2,831 feet and a 2,000-bbl. producer of No. 12 J. T. Waller.

Drilling Operations

Despite the recent storms which swept the Haynesville Field, drilling activity has shown a marked increase the past 10 days, and 20 new operations have been started. In the NE quarter of Section 20-23-8, the Houston Oil Co. is arranging to abandon its well on the John D. Knox lease on account of salt water at 2,806 feet. Considerable difficulty is being experienced with salt water in the territory west of the field. In Section 18-23-8, the Louisiana Oil Refining Corporation tested salt water at 2,826 feet in No. 1 Spivey, but is making arrangements to drill deeper. In Section 19-23-8, the Owenwood Oil Corporation tested salt water at 2,805 feet in No. 1 Camp and will abandon the test, but have started drilling a second on the same lease on which they are down 1,800 feet.

The Simms Oil Co. struck salt water at 2,794 feet in No. 2 Sanders, Section 18-23-8, and plugged the hole without bailing casing. It is thought they intend making a deep test, but for the present the well is abandoned. In the same section it struck salt water in No. 2 J. D. Lee at 2,813 feet, but plugged back 30 feet and are now waiting cement to set at 2,783 feet. The same company has a fishing job at 2,777 feet in No. 2 A. H. Hunt, and is bailing No. 3 at 2,756 feet with 1,800 feet of fluid in the hole, Section 17-23-8. It is drilling No. 3 Sanders at 1,058 feet, Section 18-23-8, and in the same section bailing to test No. 1 J. D. Lee at 2,775 feet.

Most of the drilling activity of the Haynesville Field has centered in the western extension and with the completion of a producer in Section 13-23-9, Webster Parish the operations are expected to quickly spread a section further west. Sections 18 and 19-23-8 are the scene of an unusual amount of activity with Section 18 in the lead.

In the extreme eastern section of the field the Ohio Oil Co. is carrying on the major portion of its operations with over 50 wells now drilling. The Gilliland Oil Co. is also drilling a number of wells in the eastern part of the field. The northern portion of the field is coming into prominence through the completion of two or three wells a little north of previous production and a number of wells are drilling in that vicinity. In Section 8-23-8, the Gilliland Oil Co. is waiting on standard rig to pump No. 1 S. T. Hunt at 2,800 feet, and 2 miles west, in Section 10-23-8, they are drilling at 2,770 feet in No. 2 T. W. Sherman and 1,500 feet in No. 3.

In the same section the Louisiana Oil Refining Corporation is bailing 6-inch casing at 2,758 feet in No. 1 T. W. Sherman, and in the adjoining Section 9-23-8, they are drilling two wells on the S. T. Hunt lease. In Section 7-23-8, Malloy and others are drilling at 200 feet in No. 1 Gaines just west of the Livert well. A little over a mile north of the producing area the Roxana Petroleum Co. is arranging to set 6⅝-inch casing at 2,757 feet in a test on the Smith lease.

Price Harrell and associates have resumed operations on their test in Section 15-23-4 and are drilling at 2,000 feet in No. 1 Brinkley. The Haynesville Star Oil Co.'s No. 1 Crump is shut down waiting driller. It will test at 2,823 feet, Section 9-23-7, several miles east

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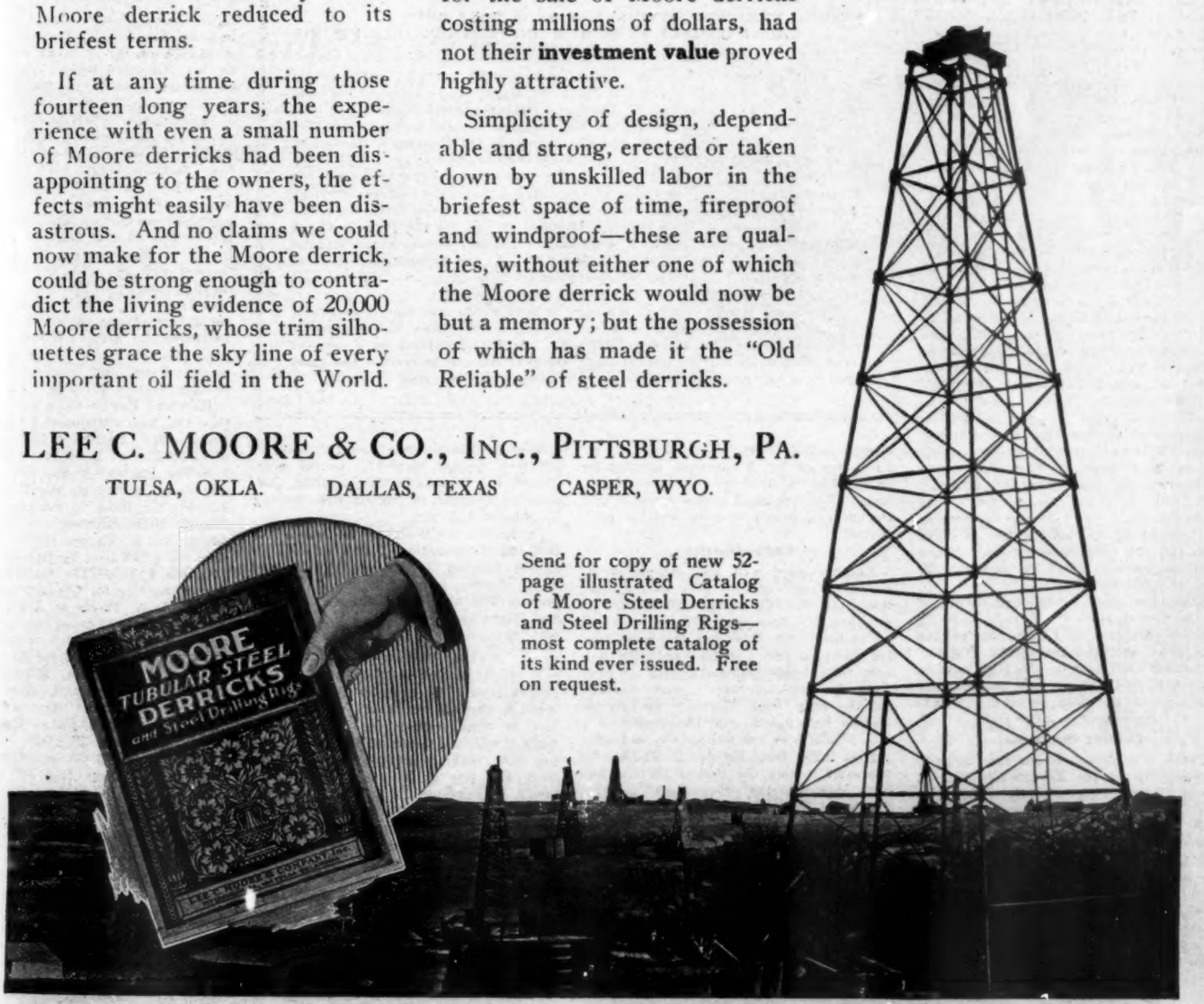


of the producing area. South of production McCullough and others are drilling at 2,400 feet in their second test on the Parker lease in Section 29-23-8. O'Neal & Black and others' derrick blew down on the Prestridge lease and the drill stem is in the hole at 3,300 feet. This is a wildcat operation east of the proven territory. Smitherman & McDonald have derrick up for a well on the Avenger lease in Section 25-22-8, nearly 6 miles south of the Haynesville Field. In the adjoining Section 24-22-8, the White Oil Corporation is down 1,400 feet in No. 1 Avenger.

In the old Clairborne Field, Adams and others are testing No. 1 Kelly at 2,185 feet with 100 feet of broken lime, Section 33-20-7.

At the close of the past week there were 27 wells waiting on standard rig to pump; 9 wells temporarily abandoned; 147 wells drilling; 7 rigging up to drill; 73 derricks and 31 locations.

El Dorado

Development in the El Dorado district resulted in the best showing that has been made for many weeks, and it is evident that the possibilities of this field have by no means been exhausted. Particularly is this true of the south end of the district, where the producing territory is being steadily extended with the limits of the pool still undefined.

The best well of the week was completed by the Woodley Petroleum Co. on the Burns lease in Section 32-18-15, the well flowing at the rate of 2,000 bbls. a day, at 2,155 feet, and extending the field a quarter of a mile west of previous production. D. C. Richardson completed another good well on the Greenlee lease in Section 28-18-15, No. 2 flowing 1,000 bbls. a day at 2,177 feet.

An interesting completion was made by the Arkansas Oil & Lease Exchange, its No. 1 Benson, in Section 9-19-15, making a 200-bbl. pumper at 2,165 feet and extending the field a little south and west. The Anderson Drilling Co. completed its first well on the Taylor lease in Section 4-19-15, making a 250-bbl. pumper at 2,113 feet. Chaddick and others got a 200-bbl. pumper at 2,144 feet in No. 2 Woods, Section 20-18-15.

E. M. Jones completed No. 2 Rowland in Section 28-18-15, pumping 150 bbls. at 2,134 feet and J. L. Nelson's No. 1 Cullens in Section 4-19-15, is pumping 20 bbls. at 2,149 feet. Olvey and others completed two wells on the Mann lease in Section 29-18-15, is pumping 200 bbls. at 2,180 feet and B-2 pumping 100 bbls. at 2,198 feet.

Interest is again centered in the development of the northwestern extension of the El Dorado district where a number of good pumpers have been completed recently, producing an unusually high grade of oil for this territory. The Cycle Oil Co.'s No. 1 Dumas in Section 15-17-16, made a 30-bbl. pumper at 2,142 feet, and the Gulf Refining Co.'s No. 2 Trull in Section 25-17-16, pumping 30 bbls. at 2,193 feet.

Klatz and others abandoned their test on the Lester lease in Section 35-16-15, 4 miles northeast of El Dorado, getting salt water at 2,164 feet. The Woodley Petroleum Co.'s test on the Hill lease in Section 17-18-14, in the new northeastern extension of the field, proved a failure and was abandoned at 2,229 feet.

Drilling Operations

There is a noticeable increase in drilling activity in the El Dorado district, interest being about equally divided between the pools northeast and northwest of El Dorado, and the development in the extreme southern edge of the district. The Gulf Refining Co. had a small showing of oil and gas in the test on the Thomas lease in Section 16-18-14 at 2,217 feet, but it is now showing salt water at 2,255 feet and will probably be abandoned.

In the gas territory west of El Dorado, the Constantin Oil & Refining Co. is rigging up to drill No. 1 Fee in Section 1-18-16, and is drilling at 2,270 feet in No. 2 Hill in the same section. The El Dorado Natural Gas Co. had a big gas blowout at 2,530 feet in No. 1 Frazier, Section 1-18-16, and is pulling liner to set 6-inch casing; in the same section, No. 1 Mellor is rigging up to drill. Northwest of El Dorado, the Equitable Petroleum Co. has set 6-inch casing in No. 1 Barton, Section 33-17-16; the Magnolia Petroleum Co. is rigging up to drill No. 5 McKinney in Section 25-17-16; the Standard Oil Co. is bailing No. 8 Ingram, Section 25-17-16, and Hooker and others have a good showing of oil at 2,141 feet in No. 1 Dumas, Section 15-17-16; the hole stands with 300 feet of oil, and 2-inch tubing will be set with packer.

A wildcat test of unusual interest has been started by Bonderant and others on the Stegall land in Section 3-18-12, 19 miles east of El Dorado, in which 10-inch casing has been set at 205 feet. Gann & Burk have set 6-inch casing in No. 1 Rowland, Section 26-18-6, in the west edge of the pool. The George & Jones Drilling Co. has derrick up for a test on the Murphy lease in Section 8-16-15, closely adjoining the big gas well recently brought in by the Oil Operators Trust of Houston.

The Gulf Refining Co. has set 10-inch casing at 450 feet in a test on the Polk & Ezell lease in Section 13-17-15, two miles northeast of El Dorado. The Woodley Petroleum Co. has set 6-inch casing in No. 1 Hill, Section 7-18-14, 3 miles southeast of El Dorado. The Magnolia Petroleum Co. tested dry at 2,180 feet in No. 1 Ekstrom, Section 5-18-16, and is drilling deeper at 2,440 feet. The test is 5 miles west of El Dorado and nearly 3 miles west of production.

Caddo District

Another good well was completed in the deep sand of the Pine Island district, the Sun Co.'s No. 126 Bradford, pumping 125 bbls. at 2,387 feet. Activity in the Caddo Field has increased during the past two months more than has been noticed this year and during the past week five new operations were started. In the deep sand territory Belchic & Laskey have taken over The Texas Co.'s No. 1 Noel and are setting 4½-inch casing at 2,290 feet, Section 25-21-15. In the same section the Romax Oil Co. has gone back into the old well and is drilling No. 4 Noel at 2,315 feet.

Daugherty and others have derrick up for a wildcat on the Odem lease in Section 27-18-14. In the shallow territory at Hosston the Louisiana Consolidated Oil & Refining Co. has shut down No. 18 Peak for repairs at 150 feet, Section 23-22-15.

The Dixie Oil Co. has set 4½-inch casing at 2,675 feet in No. 34 Robertshaw, Section 14-21-15, and in the same section its No. 42 Robertshaw flowed by heads for 40 minutes and the production was estimated at 700 bbls. from 1,664 feet. The Fortuna Oil Co. is cutting salt water at 3,000 feet in No. 8 Robertshaw, Section 23-21-15.

De Soto Parish

In the Dolet Lake district, Elam and others completed No. 1 Giauque, Section 9-11-11, pumping 30 bbls. at 2,749 feet. The Simms Oil Co. is down 3,540 feet in its deep test on the Boone-Giauque lease, Section 8-11-11. The Big Five Oil Co. has set 6-inch casing at 2,239 feet in No. 1 Williams, Section 29-13-11. Butler-McMurray are setting 6-inch casing at 2,525 feet in No. 1 Matthews, Section 32-12-11, and in the same section The Texas Co. tested salt water at 2,629 feet in No. 1 Matthews and has drilled down to 2,663 feet.

Eades and others are down 1,600 feet in No. 1 Nolan, located in the south end of DeSoto Parish, in Section 15-10-13. Snell and others have drilled to 2,005 feet in their No. 1 Connell, half way between Logansport and Mansfield in Section 8-12-14.

Bellevue Field

Activity in the new shallow field is not coming up to expectations and very little new activity is under way this week. Six wells were completed, two of which were failures, but a 600-bbl. well of R. L. Autrey's has served to brighten the outlook. Chandler and others abandoned No. 1 Mobley in Section 28-20-11 at 2,701 feet on account of salt water.

The Gulf Refining Co. completed No. 6 Bliss & Weatherbee, flowing 4 bbls. at 386 feet, Section 15-19-11. In the same section the Louisiana Oil Refining Corporation brought in No. 13 Fee, flowing 50 bbls. at 325 feet.

In Section 10-19-11, the Louisiana Oil Refining Corporation completed No. 4 Elston, flowing 25 bbls. at 351 feet, and R. L. Autery brought in No. 5 Elston, flowing 600 bbls. at 329 feet. Vaughn and others abandoned No. 1 Kelly at 400 feet, Section 35-19-11.

Drilling Operations

R. L. Autrey is drilling at 75 feet in No. 6 Elston, Section 10-19-11. Armistead & Berkley tested salt water at 400 feet in their second test on the Allen lease, a mile southeast of production, and are now making arrangements to plug back and test at 320 feet, Section 23-19-11. The Gulf Refining Co. had to junk No. A-2 Bliss & Weatherbee at 387 feet, and after moving over it has drilled to 100 feet in the second hole, Section 15-19-11.

The Louisiana Oil Refining Corporation's No. 5 Fee is flowing 2,000 bbls. of salt water with a little oil and gas at 388 feet, Section 15-19-11. On the same lease it has plugged back No. 10 from 348 to 340 feet and is waiting cement to set. Nelson and others have set 10-inch casing and drilled to 170 feet in their test on the Wutzke lease, 5 miles southwest of present production in Section 2-18-12. The Standard Oil Co. has two deep tests drilling on the Kedrick lease nearly a mile south of production in Section 22-19-11. Vaughn and others are moving in rig for a test on the McDade lease, 2 miles south of production in Section 28-19-11.

Louisiana Wildcats

Bossier Parish — Only one small pumper was completed in Bossier Parish, The Texas Co.'s No. 5 Caplis, Section 24-16-12, making 15 bbls. at 1,554 feet. In this same section, the Gulf Refining Co. is down 2,885 feet in No. 11 Hodges, and The Texas Co. is setting 6 inch liner in No. 6 Caplis at 1,524 feet.

In the Elm Grove district adjoining these completions the Atlas Oil Co. has derrick up for No. 6 Caplis, Section 25-16-12. The Atlantic Oil & Refining Co.'s test on the Broom lease is attracting wide interest. It is located 4 miles south of Plain Dealing and is now down 2,500 feet, Section 5-21-13. Three miles north of this test it is drilling at 2,704 feet in a test on the Bollinger lease, Section 21-22-13.

Hall & Hicks are drilling at 1,530 feet in No. 1 DeMoss, Section 20-22-12, 4 miles southeast of Plain Dealing. Morgan and others are drilling a test 5 miles east of Shreveport, on the Morgan lease, Section 34-18-12, down 1,505 feet.

Bienville Parish—The Hodge & Hunt Oil Co. is drilling a test on the eastern edge of the parish, about 25 miles east of Shreveport. The test is on the Fee lease, in Section 16-15-4, and is down 3,240 feet. The Bienville Oil Co. is drilling at 1,310 feet in No. 1 Theus, Section 6-17-5.

Morehouse Parish—Three miles southwest of Bastrop, La., Morris, trustee, has set 6-inch casing at 2,127 feet in a test on the Sandidge lease, Section 10-20-4. In Section 17-20-5e, the Southern Carbon Co. has rig up for No. 6 Spyker.

Natchitoches Parish—The Robeline Syndicate has resumed operations in its well on the Winn lease and is down 1,390 feet, Section 8-8-9.

Ouachita Parish—Two large gas wells were completed during the week with a combined production of 25,000,000 cubic feet. The Huber Carbon Co. brought in No. 1 Ray, making 12,000,000 cubic feet of dry gas at 2,162 feet, Section 30-19-5, and the Southern Carbon Co. completed No. 8 fee, making 13,000,000 cubic feet of gas at 2,160 feet, Section 13-19-4e. In Section 33-19-4e this company has set 6-inch casing at 2,150 feet in No. 9 fee and is down 510 feet in No. 10, Section 17-19-5e.

Richland Parish—The Mangham Oil & Gas Co. has abandoned its test on the Baker lease, Section 4-15-7, on account of salt water at 2,800 feet.

Sabine Parish—Brown and others have rig up for a test on the Bowman-Hicks Lumber Co. lease, in Section 7-7-12. The Gladys Belle Belmont Oil Co. has shut down No. 1 Raines, waiting for drill stem at 1,016 feet, Section 33-9-11.

Union Parish—The Gulf Refining Co. is now waiting for 4½-inch casing to test No. 1 J. A. Davis at 3,004 feet. The well is located 2 miles southwest of Bernice. Five miles south of Junction City they are rigging up for a test on the Willis Nickles lease, Section 32-23-3w. The Haskell Oil Co. is down 3,000 feet in their test on the Slayton lease, about half way between Farmerville and Bernice, in Section 27-21-2w. The Humphreys-Texas Oil Co. is drilling at 3,465 feet in its deep test on the Collins lease, Section 10-23-2w. The Texas Co. is down 1,815 feet in No. 1 Grayling Lumber Co., in the northeast corner of the parish, Section 20-23-3e. The Transcontinental Oil Co. has set 14-inch casing at 255 feet for a deep test to be made on the Carroll tract, 12 miles northwest of Farmerville, Section 12-22-2w. In Section 18-19-1e, Woodley and others are drilling at 2,440 feet in No. 1 Hester.

Webster Parish—Webster Parish operators are elated over the completion of the Bond & Evans well, in Section 13-32-9, and several new operations have started in that vicinity the past week.

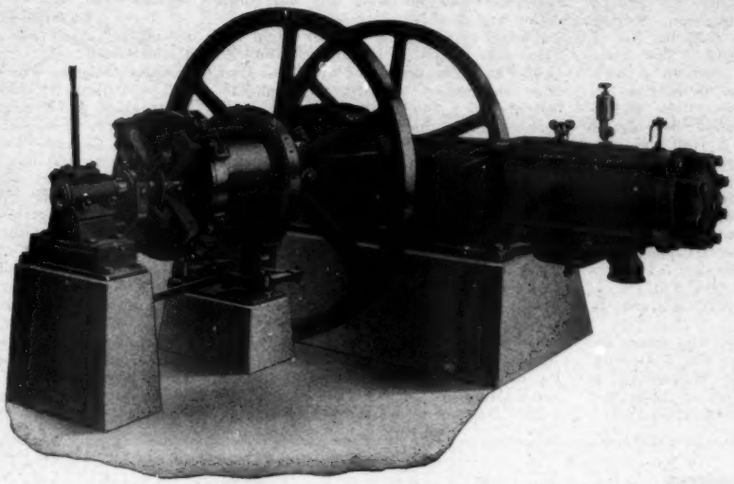
SECOND TERRIFIC WIND STORM IN 10 DAYS DOES GREAT DAMAGE IN HOMER AND HAYNESVILLE FIELDS

SHREVEPORT, La., May 29.—Approximately 150 derricks were leveled by a terrific wind storm which hit both the Homer and Haynesville Fields last week. The Homer district, Claiborne Parish, rported the heaviest loss. In this field, the Gulf Refining Co. lost 40 derricks; the Gilliland Oil Co., 30; the Standard Oil Co., 19, and the Louisiana Oil Refining Corporation, 6, bringing the total to 95.

Sections 17, 20 and 21-23-8, in the Haynesville Field, reported the greatest damage, with the Ohio Oil Co. the heaviest loser. Total derricks down in this area numbered 68, and several dwellings were destroyed. The Ohio Oil Co. lost 24 derricks; the Houston Oil Co., 6; the Humble Oil & Refining Co., 5; Smitherman & McDonald, 4; Palmer Trust, 5; the Roxana Petroleum Co., 5; the National Refining Co., 4; the Standard Oil Co., 4; and Richardson and others, Florsheim and others, Arkansas Natural Gas Co., and Livert Oil & Gas Co. lost one derrick each.

This is the second storm in the past 10 days which has done considerable damage in the surrounding oil fields, causing a heavy loss to operators in both the Homer and Haynesville Fields. Active operations on a number of drilling wells will be delayed until new derricks can be erected and there will be a heavy loss in production until repairs can be made.

ATLAS SUPPLY COMPANY



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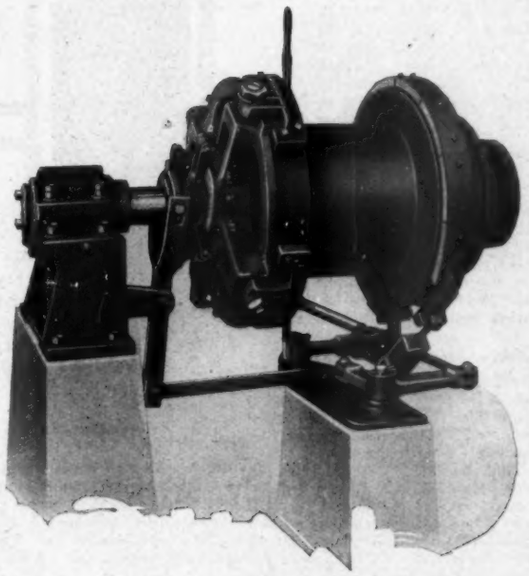

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Although the well is not actually pumping, it is estimated good for at least 200 bbls. per day and the oil is running over the derrick floor from a depth of 2,798 feet. In this same section, just across the line from Claiborne Parish, the Amerada Petroleum Co. is building a derrick for a well on the Kilpatrick lease. Herring and others are down 1,200 feet in No. 1 O. E. Shaw. The Section 31 Oil Co. has derrick pattern on location for No. 1 Kilpatrick. Malloy & Chew are rigging up for a well on the Shaw lease. Barry, trustee, tested No. 1 Turner dry at 436 feet and abandoned the test. The well was located in Section 26-19-10, south of the Bellevue producing area. The Arkansas Natural Gas Co. has set 8-inch casing at 1,301 feet in No. 245 L. & A. Oil Co., Section 24-23-10. E. G. Brewer and others tested salt water at 3,197 feet in No. 1 Giles, and have shut down for the time being. The well is located in the north end of the parish, in Section 12-23-11. Crumpton and others have shut down No. 1 Fee at 865 feet, Section 31-19-10. The Goodwill Oil Co. tested No. 1 Crumpton dry at 435 feet and will abandon. The test is located 3 miles east of the Bellevue Field, in Section 21-19-10. A. J. DeCoute and others tested salt water at 2,812 feet and abandoned No. 1 Davis, Section 20-18-8. Glassell and others are down 2,510 feet in No. 1 Wise, Section 30-23-9. The Louisiana-Mississippi Oil Co. tested salt water at 2,713 feet in No. 2 Denman and is now plugging back, Section 1-22-11. The Louisiana Oil Refining Corporation is rigging up to drill its third well on the Gleason lease, in Section 18-22-9. The Rosemont Syndicate is down 490 feet in No. 1 Gruner, 4 miles southwest of Homer, in Section 21-20-8. The National Oil Co. is drilling at 835 feet in No. 1 Fullbright, Section 31-19-9. The Standard Oil Co. has derrick up for a test on the Reese-Jordan lease, Section 16-17-8, in the south end of the parish, near Lake Bisteneau and the Woodley Drilling Co. has made a location for No. 1 Campbell, Section 2-22-10.

Arkansas County

Arkansas County—The deep test on the Weaver lease, in Section 17-3-5, drilling by Johnson and others, is down 3,235 feet, drilling ahead. The Arkansas Oil Lease & Development Co. is temporarily closed down at 1,385 feet.

Calhoun County—Barnesdale & Foster are drilling a deep test on the Smith-Freeman Lumber Co. lease, in Section 8-13-15, in which they are down 3,020 feet.

Columbia County—Columbia County is the center of wildcat operations in southern Arkansas, numerous showings of oil and gas serving to encourage continued exploration throughout this territory. The American Fuel Oil & Transportation Co. is drilling at 1,975 feet in No. 1 Hicks, Section 21-16-22. The Hercules Oil Syndicate is drilling at 2,030 feet in No. 1 J. B. Wise, Section 29-18-21, and Hude & Aarnes at 2,025 feet in No. 1 Brown, Section 13-15-20. Jones and others are down 650 feet in No. 1 Sauter, Section 15-19-22. Russell and others are drilling at 250 feet in No. 1 Rushton, Section 7-19-19, and at 2,550 feet in No. 1 Wessley, Section 18-19-19. The Pure Oil Co. is down 3,160 feet in a deep test on the Webfer lease, in Section 33-15-20. In Section 11-15-20, the Middle States Oil Co. has a good showing of oil at 2,185 feet in No. 2 Hall. In this vicinity Turley & Montgomery have derrick up for No. 1 Hall, in Section 11-15-20. Grason and others are rigging up to drill No. 1 Nagle, in Section 11-17-20. The Transcontinental Oil Co. has rig up ready to start drilling on the J. M. Curry lease, in Section 5-16-19.

Dallas County—The Ohio Oil Co. is rigging up to drill No. 1 W. A. Jackson, in Section 19-8s-16w.

Drew County—Garrison and others are drilling at 2,540 feet in No. 1 Oswald, Section 26-13-5, and the Wilmer Oil & Gas Co. has a fishing job at 1,640 feet in No. 1 Montgomery, Section 26-12-8.

Grant County—Harry Winter and others are temporarily closed down at 2,490 feet in No. 1 Lamb, Section 25-6-15.

Hempstead County—The Allen Oil Co. tested salt water at 2,880 feet in No. 1 Henry, Section 30-12-23, and will pull casing and abandon. Anderson and others have a promising looking sand at 2,250 feet in No. 1 Mason, Section 7-11-23, and are arranging to test. Secrist and others are drilling at 1,325 feet in No. 1 Duckett, Section 24-13-23.

Hot Springs County—A showing of oil near Malvern has resulted in considerable development in this vicinity, with the usual excitement attending operations in a possible new pool. The test on the Malvern Lumber Co. lease, drilled by W. H. Rowe and others, has proved a failure so far and is closed down at 1,350 feet, but may be drilled deeper. The test was located in Section 18-4-16, and a derrick is now up for No. 1 De Laney, in Section 13-4-16. Mars and others are drilling at 350 feet in No. 1 White, Section 34-4-16. The Malvern Petroleum Co. is drilling at 750 feet in No. 1 Malvern Lumber Co., Section 32-4-16. Dickson and others are drilling at 100 feet in No. 1 Hazker, Section 3-4-17. Blayne & Holcomb are closed down at 925 feet in No. 1 DeLaney, Section 24-4-16. Taylor & Hinson are closed down at 1,325 feet in No. 1 Hinson, Section 19-4-16.

Jefferson County—Hall & Smith are drilling at 2,185 feet in No. 1 Nicks, Section 8-6-6.

Miller County—The Central Coast Oil Co. is drilling at 2,970 feet in No. 1 Mann Land & Development Co., Section 22-15-26.

Nevada County—The Kanark Oil Co. is drilling at 160 feet in No. 1 Philips, Section 21-13-21.

Ouachita County—Walker and others have abandoned their test on the Venerable lease, in Section 16-14-17, getting salt water at 3,200 feet. The Dickson & Guise Oil Syndicate is drilling at 2,375 feet in No. 1 Benton, Section 24-19-12. Dickson and others are drilling at 200 feet in No. 1 Hecker, Section 2-14-17. The Southern Oil Co. is drilling at 2,845 feet in No. 1 Pattison, Section 22-12-19. The Lumbermen Oil Co. has set 6-inch casing at 1,925 feet in No. 1 Fletcher, Section 27-14-19.

BIG EL DORADO GASSER NOW ENDANGERING PRE-WAR NEGRO CEMETERY

SHREVEPORT, LA., May 29. — A negro burying ground which has existed since before the Civil War and in which the bodies of a large number of negroes are interred, is being drawn gradually into the vortex of the wild gas well eight miles north of El Dorado, Ark. This well has been blowing wild since it came in recently, with the result ground has caved in for from 300 to 400 feet around the well, the crater being estimated at from 75 to 100 feet deep. The well is still blowing gas at an estimated rate of 50,000,000 cubic feet a day and the pressure is so great a boiler and part of a rig in the crater have been lifted several feet on different occasions. If the crater extends much further, the negro burying ground is doomed.

North-Central Texas Field

By DAN F. DUGAN

Developments in South Electra Field during week in measure define limits of that pool. Two wildcat tests outside developed area have good showings as producers. No completions of importance reported from Stephens County, while Young County also failed to develop anything out of the ordinary. Production in each county remained practically stationary. Important tests nearing completion.

WICHITA FALLS, Tex. May 29.

The North Central Texas Field in its entirety made a daily production gain of 2,129 bbls. during the past week. Electra made the greatest increase of any pool in the field, 1,008 bbls. daily. The total reported production is 136,138 bbls. daily.

Developments in the South Electra Field during the past week in a measure defined the limits of that pool. With the partial completion of the Planet Petroleum Co.'s No. 4 Waggoner, 2,000 feet south of The Texas Co.'s 1,900-foot producers on the Waggoner, and the same distance to the west of the Gulf Production Co.'s on the Burnett, the acreage extent of this pool has been partially defined. There was a slight extension on the east side by the Griswold Oil Co.'s No. 2-B Burkburnett, south of the Griswold Oil Co.'s wells in the 1,900-foot sand. This test is east of the Texas & Planet Co.'s producing leases.

The Hobbs Oil Co.'s No. 4 Waggoner is not as yet completed, but is estimated good for around 600 bbls. flush production at 1,822 feet. Only about 4 feet of the pay has been drilled. Two wildcat tests outside of the developed area are attracting considerable attention. They are the Texhoma Oil & Refining Co.'s No. 1 Throckmorton, about 1½ miles east of the Gulf Production Co.'s producers, on the Corlett land, reported 1 foot in an oil sand at 1,788 feet and showing for a fair sized producer. The Bailey & Callman's No. 1 Waggoner is showing for 200 bbls. flush in a sand around 1,600 feet. All of these developments promise added activity for the summer months. The two wildcat tests open up much new territory rather than defining the limits of present pools. All of the above operations are south of the discovery wells in the 1,900-foot sand.

Completions for the week are reported as follows: Gates and others' No. 3 Waggoner, dry at 480 feet. Griswold Oil Co.'s No. 24 Burnett, 600 bbls. at 1,952 feet. Hackaday & Shaw's No. 1-B Waggoner, dry at 500 feet. Harvey and others' No. 2 Waggoner, 360 bbls. at 1,958 feet. Perkins and others' No. 2 Waggoner, dry at 526 feet; No. 3 Waggoner, dry at 468 feet.

Many tests are drilling near the pay sand depth and should make interesting completions during the coming week. The Gulf Production Co.'s No. 1-A Jennings is rigging up to pump a sand at 1,924 feet. This well swabbed 67 bbls. in 13 hours. Scott Petroleum Co.'s No. 4-A Ward & Todd is drilling at 1,160 feet. Bridwell & Heydrick's No. 11 Waggoner is shut down for orders at 1,200 feet; No. 12 Waggoner, offsetting the No. 215 Waggoner of The Texas Co., has set casing on the lime at 1,857 feet and is preparing to drill in. This is the first deep test on this lease. No. 13 Waggoner is drilling in shale at 610 feet. Carter and others' No. A-1 Waggoner is running 12½-inch casing at 645 feet.

The Texas Co.'s No. 216 Waggoner is rigging up to complete at 1,927 feet; No. 217 Waggoner will be completed with a rotary around 1,760 feet; No. 219 Waggoner is drilling in sand lime at 1,425 feet; No. 220 is a derrick and No. 221 a location; No. 222 Waggoner is drilling in gumbo at 1,110 feet; No. 223 Waggoner is drilling in lime rock at 615 feet; No. 224 Waggoner is drilling in blue shale at 1,785 feet; No. 225 is a rig; No. 226 is moving in cable tools; No. 227 is rigging up a rotary.

Griswold Oil Co.'s No. 9-B Burnett has water trouble at 485 feet and may be drilled deeper; No. 10-B Waggoner is drilling at 700 feet; No. 1-B Waggoner is drilling in a sandly lime showing rainbows at 1,905 feet. Gulf Production Co.'s No. 2-C Burnett is drilling in dry sand at 1,040 feet; No. 9-C Burnett is drilling in shale at 941 feet; No. 11-C is a rotary; No. 2 Powell has an oil sand at 822 feet, is on a pump and showed 35 bbls. of oil in 12 hours No. 1-C Roberts, Fowlkes Pool, is drilling in gumbo at 2,015 feet. This is 200 feet below discovery sand depth.

Drilling Operations

Humble Oil & Refining Co.'s No. 1 Roberts, Fowlkes Pool, is drilling at 1,845 feet; No. 1-B Roberts has moved in a rotary and has a sand showing about 8 bbls. at 900 feet. T. F. Hunter's No. 2 Roberts is drilling at 755 feet. Ladd & Hannon's No. 2 Waggoner is fishing for tools at 520 feet. Magnolia Petroleum Co.'s No. A-3, Fowlkes Pool, is drilling at 800 feet.; No. A-4 is drilling at 320 feet; No. 1-B is drilling at 350 feet. Mid-Texas Oil Co.'s No. 1 Brown is drilling in soft shale at 1,625 feet. Mutual Oil Co.'s No. 1 Burnett is changing to a rotary rig at 585 feet.

John O'Neill's No. 1 Waggoner, Section 33, is on a sand and will test at 1,413 feet; No. 2 Waggoner, Section 33, is shut down at 1,833 feet; No. 3 Waggoner, Section 33, is drilling at 933 feet.

Planet Petroleum Co.'s No. 37 Burnett is rigging up a rotary at 360 feet; No. 40 Burnett is drilling at 1,620 feet; No. 41 Burnett is drilling at 1,725 feet; No. 42 Burnett is drilling at 1,560 feet; No. 43 Burnett is drilling at 510 feet, No. 44 Burnett is drilling at 160 feet; No. 45 is a derrick.

Riner & Bailey's No. 5 Waggoner has an oil sand showing 5 bbls. at 475 feet; No. 6 Waggoner is drilling at 495 feet.

St. Louis Oil & Development Co.'s No. 1 Powell is a small well and is being tested at 1,856 feet. Shamrock Oil Co.'s No. 1 Waggoner is washing out and 6⅝-inch casing was set at 1,884 feet. Stewart and others' No. 1 Martin is ratholing at 1,300 feet. Strunk &

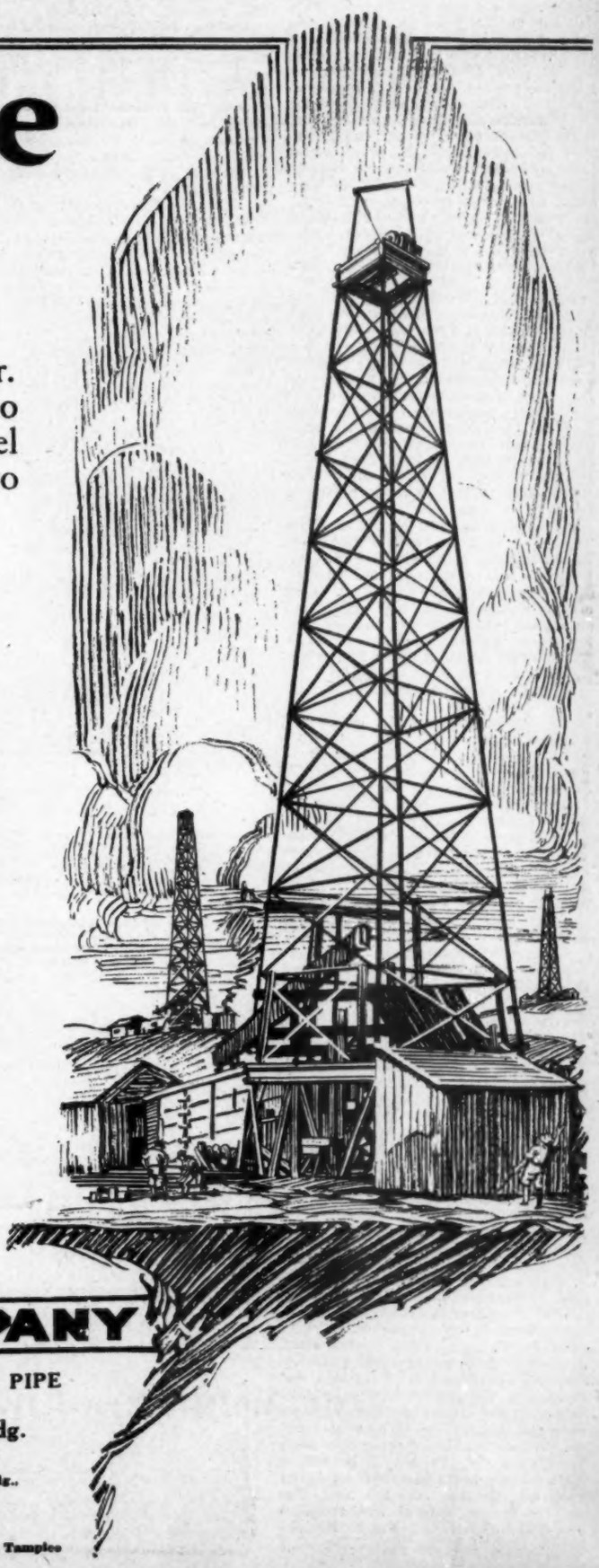
STEEL SUPERIOR DERRICK

Performance in the field

AN excerpt from the report of Mr. James A. Thomas, Engineer, who watched the field test of the Superior Steel Derrick from the erection of the derrick to the pulling of the pipe:

"The 12½-inch casing was pulled November 14. This string was 'frozen' tight and 'collar-bound', and it was predicted by many that the pipe could never be pulled off bottom. Although the weight of this string was 34 tons as compared to 40 tons of 10-inch, the friction and 'frozen' condition made it by far the more difficult to pull. It required about 2½ hours to start the pipe off bottom and many times the engine was stalled with full steam applied. The 'collar-bound' condition presented another very difficult situation, requiring even greater effort than was required to start the pipe off bottom. **Throughout the entire time, however, the derrick performed most satisfactorily and at no time was the slightest twist noticeable, nor was there any deformity in the structure."**

Write for a copy of the complete report made by Mr. Thomas, terms of sale, delivery, etc.



SUPERIOR TUBE COMPANY

STEEL DERRICKS CASINGS TUBING LINE PIPE

General Offices: KANSAS CITY, MO., 301 Security Bldg.

Branche Offices:

1200 Chamber of Commerce Bldg., Pittsburgh, Pa.

814 First National Bank Bldg., Tulsa, Okla.

523 First National Bank Bldg., Houston, Tex.

1442 Syndicate Trust Bldg., St. Louis, Mo.

Yards: St. Louis, Cisco, Taft, Tulsa, Eastland, Washington, Pa., Mexia, El Dorado, Casper, Tampico

Nix's No. 1 Burnett is fishing for one joint of pipe and has sand showing rainbows at 227 feet.

Texhoma Oil & Refining Co.'s No. 1 Duke is shut down for orders at 871 feet; No. 3 Duke has an oil sand at 860 to 865 feet and will test. Troxel and others' No. 2 Waggoner is testing a sand at 751 feet. Wichita Petroleum Co.'s No. 38 Burnett has an oil sand at 1,947 feet that showed 453 bbls. in 12 hours. This well will no doubt make a splendid producer. No. 39 Burnett has an oil sand at 1,841 to 1,847 feet and will swab 60 bbls.; No. 40 Burnett is drilling at 1,150 feet; No. 42 Burnett is drilling at 1,250 feet; Nos. 41 and 43 are derricks.

Burkburnett Townsite Quiet

The Burkburnett Townsite and Northwest Extension Pools offered no sensations either in drilling wells or completions during the past week. There were only two completions reported. The Camp Oil & Gas Co.'s No. 1 Harding, dry and abandoned at 1,535 feet. Sunshine State Oil & Refining Co.'s No. 1 Holtzen, completed for 5 bbls. at 1,870 feet.

The California Burk Oil & Gas Co.'s No. 3 Harrell has set 6⅝-inch casing in lime at 1,864 feet. Jetter and others' No. 2 Myers is trying to pull 6⅝-inch casing to plug back to 1,735 feet from 1,854 feet. No. 3 Myers is shut down and looks like a failure at 1,804 feet. Panhandle Oil & Refining Co.'s No. 1 Goetze is drilling at 1,625 feet. Priddy and others' No. 3 Birk is swabbing 10 bbls. at 1,814 feet; No. 4 Birk is drilling in lime at 1,710 feet; No. 1 Myers is shut down at 1,890 feet and may be abandoned.

Staley & Langford's No. 2 Langford has an oil sand at 1,806 to 1,845 feet and is cleaning out. Hill & Jones' No. 1 Reanes has an oil sand at 1,704 feet, set 6⅝-inch casing and is drilling. Lanning & Moninger's No. 5 Waggoner has an oil sand at 1,240 feet and set 6⅝-inch casing at 1,238 feet; No. 1 Dodson set 6⅝-inch casing at 1,524 feet and is shut down for orders at 1,530 feet.

Magnolia Petroleum Co.'s No. 10 Dodson has set 6⅝-inch casing at 948 feet, is moving in a Star at 1,050 feet and will drill deeper. Stumpf Oil & Gas Co.'s No. 7 Cropper set 6⅝-inch casing at 1,373 feet and is moving in a Star to complete. Thomas & Martin's No. 5 Cropper has an oil sand at 1,247 feet and is bailing.

Completions in the southeast Burk are as follows: Hunter & Watson's No. 3 Fowler, 150 bbls. at 1,225 feet; Laning & Moninger's No. 4 Waggoner, dry and plugged at 1,258 feet; Magnolia Petroleum Co.'s No. 8 Dodson, 80 bbls. at 1,040 feet.

Wilbarger County

Aurora Oil & Development Co.'s No. 1 Oglesby is drilling at 1,260 feet. Griswold Oil Co.'s No. 1 Waggoner, Section 38, is a rig. Noble Oil Co.'s No. 1 Thompson has pulled pipe and is cleaning out the bottom at a total depth of 3,000 feet. John O'Neil's No. 1 Waggoner, Section 18, is drilling at 425 feet. No. 1 Waggoner, Section 19, has set 6⅝-inch casing on top of sand showing considerable oil at 1,650 feet. Penn-Burk Oil Co.'s No. 1 Hart is fishing for tools at 2,635 feet. Planet Petroleum Co.'s No. 1 Waggoner is running 10-inch casing at 1,165 feet. Sigler Oil Co.'s No. 3 Wharton is drilling at 1,285 feet.

Hardeman County

Midwest Petroleum Co.'s No. 1 Mulkery is underreaming at 1,990 feet. Walker Oil Co.'s No. 1 Lucius is trying to land 10-inch casing at 1,378 feet.

Stephens County

The week in review has been a very quiet one in the Stephens County Field. Production remained practically stationary. No completions were reported that showed in the gusher class. In fact, outside of the drilling development there were few happenings of especial interest. A late completion reported was by The Texas Co., its No. 2 Norvell, a short distance north of the defined Currie Pool, for 400 bbls. at 3,309 feet. The well is flowing natural and the lime was drilled 6 feet. Charles F. Rosser's No. 3 Katy Bell, at 3,209 feet, is a producer of around 400 bbls. natural. The pay was drilled 33 feet. It will probably be shot.

The Magnolia Petroleum Co. has abandoned No. 3 Furr as a dry hole at 3,187 feet. Two small producers are reported by The Texas Co. The No. 3 Sophia Houston, after a shot, is showing 20 bbls. at 3,360 feet, and the No. 4 Kennedy, shot with 20 quarts, is a 129-bbl. producer at 3,165 feet.

Drilling development is steadily making progress and several important wells should be completed within the next 30 days.

Prairie Oil & Gas Co.'s No. 8 Atkins, drilling in a soft shale formation at 2,645 feet; No. 9 Atkins, running 6⅝-inch casing at 2,760 feet; No. 10 Atkins is a rig building; No. 2 Glenn has a showing of gas and is moving boiler back at 3,213 feet.

Young County

There were no outstanding features in any branch of the industry in Young County during the past week. Several tests were placed in the abandoned column and only one well showing large initial production was reported. Production remained practically stationary for the week, making around 11,000 bbls. daily. The Roxana North American Oil Co.'s No. 4 B. F. Scott, on the Garrett Survey, is gushing oil at the rate of 2,000 bbls. a day. This test passed up 400 bbls. a day at 2,200 feet in order to go after the 3,500-foot pay. The bit is only 1 foot in the sand at 3,533 feet and made 990 bbls. in 12 hours. This well is directly across the road from the North American's No. 2 B. F. Scott, on the Smith Survey, which came in last November as a 900-bbl. well natural at 3,536 feet and which became a 4,500-bbl. well after a shot. These two wells are about a half mile south of the South Bend postoffice.

Featuring the Young County Field and in addition to the Roxana North American Oil Co.'s No. 4 Scott, the Leader Oil Co.'s No. 1 Jernigan is a very important test to this section. It is located 3½-miles east of the Penn-Cities Oil Co.'s wells on the Herron lease, an eastward extension of the Bunger Pool. It is now shut down at 2,200 feet waiting on repairs to be made to the gas line. This well, if it develops into a producer, will give this new east section of the field five separate sands. The shallowest sand and incidentally the shallowest in all Young County, has been picked up by the Mahlstedt-Mook Oil Co. in the No. 1 Williams. This well has been flowing for some little time at the rate of 50 bbls. a day from a sand at 1,695 feet. It is also making about 2,000,000 feet of gas.

Many important drilling tests are nearing pay sand depths in all sections of the producing territory in Young County and several completions should be reported within the next two weeks. The Bedford & Weakley's No. 1 Moore, at 3,920 feet, is shut down and may be abandoned; No. 2 Moore is swedging 10-inch casing at 1,600 feet. The water trouble which has stopped drilling in the Casey and others' No. 1 Jeffrey, a few miles north of Graham, has not been as yet overcome.

Cosden Oil & Gas Co.'s No. 3-L Askew was shot with 30 quarts in a sand at 2,593 feet and is showing about 500,000 feet of gas, but no oil; No. 7-M Owen is drilling with a strong gas showing at 1,845 feet.

Hallmark Oil Co.'s No. 1 Hall, the deepest drilling test in Young County, at 5,000 feet shows no indication of making an oil producer.

Revere Oil Co.'s No. 1 Farmer is fishing and has an oil and gas sand at 2,450 feet.

Completions for the past week are as follows: Barnes Production Co.'s No. 1 Parson, dry at 2,500 feet; Conner and others' No. 2 McCluskey, dry at 2,220 feet; Cosden Oil & Gas Co.'s No. 10-M Askew, dry at 2,300 feet; Godley Oil Co.'s No. 18 Graham, dry at 2,610 feet; Gulf Production Co.'s No. 5 Grimshaw, 60 bbls. at 4,030 feet; Mann and others' No. 3 Whittenberg, 130 bbls. at 1,894 feet; Monroe Oil Corporation's No. 1 Askew, 100 bbls. at 1,992 feet; National Construction Co.'s No. 8 McCluskey, dry at 2,300 feet; Ohio Fuel & Oil Co.'s No. 1 Grimshaw, dry at 2,220 feet; Oklahoma Petroleum & Gas Co.'s No. 8 Graham, 20 bbls. at 2,730 feet; Roddy and others' No. 2 Vick, dry; No. 4 Ford, dry; Simms Oil Co.'s No. 12 Owen, 20 bbls. at 1,908 feet.

Eastland County

The largest and most important test completed in the Pioneer Pool this past week was the Dyar Brothers' No. 1 Block 3, Pioneer Townsite, which is showing 750 bbls. at 2,480 feet. The new gusher is a short distance north of the L. King, on the townsite known as the "Lucky Thirteen." This well touched the pay sand for 450 bbls. and has never been drilled in. It is believed that if the King well was completed it would double its production, but the owners will not drill deeper until it becomes necessary, as they are satisfied with what it is making.

The Humble Oil & Refining Co.'s No. 1 McClure is a partial completion after a shot and is making 150 bbls. and 5,000,000 feet of gas a day. The Humble Oil & Refining Co.'s No. 2 McClure is on the sand at 2,402 feet, the shallowest depth at which the sand has been struck in this shallow field. Indications point to this well proving to be a good producer when completed.

The Rainbow Oil Co.'s No. 1 Armstrong, a mile northeast of the town of Pioneer, gives some promise of providing a big extension to the present producing area. The well is now 1 foot in the sand at the regular Pioneer depth, and according to the latest reports from the well is making 6,000,000 feet of heavy wet gas and spraying some oil. The drill went into the sand Wednesday night and had to stop, as there was too much gas showing to attempt to drill in at that time. Preparations have been made for completing the well and it is expected to drill in this week. Oil men well qualified to pass judgment have predicted that the well will be a good producer from the Pioneer sand depth.

There are other wells drilling in the vicinity of the Rainbow Co.'s test. The Invincible Oil Corporation, of Fort Worth, has a large block of acreage offsetting that acreage and drilling. Being a mile from other production, the Armstrong is looked upon as probably the most important well in this entire district at this time.

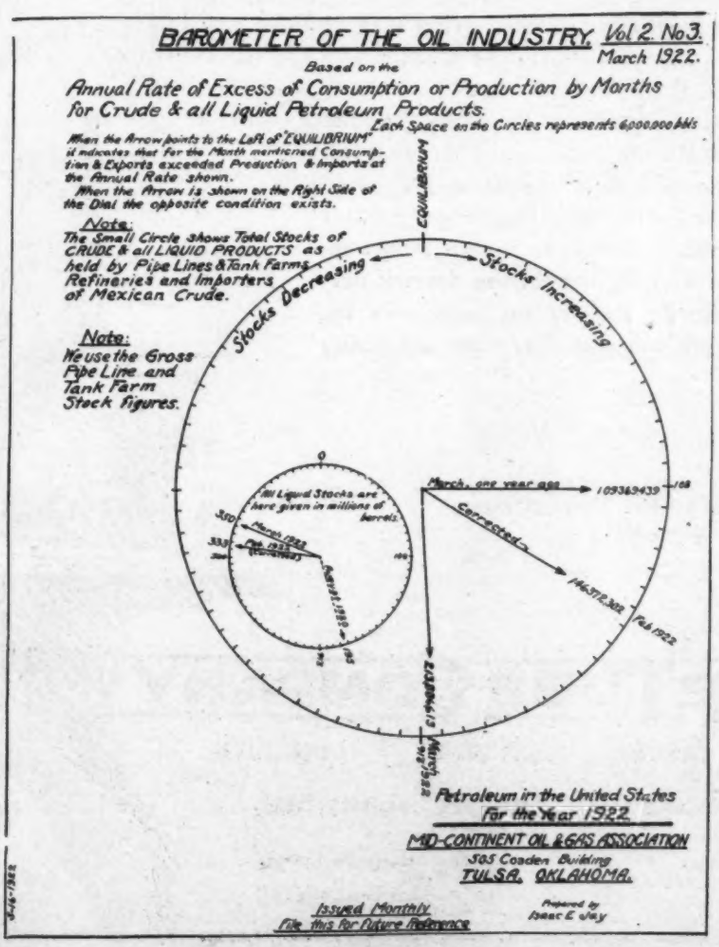
A report from Pioneer, believed to be reasonably authentic, cites the T. B. Slick gusher, No. 1 Bryson, as a real sensation. It is stated that a battery of 18 250-bbl. flow tanks are receiving the oil and three pipe lines are pumping from the tanks. The gusher increased its flow to such an extent when the tools were withdrawn that the combined capacity of the tanks and pipe lines was unable to care for the flow and it was necessary to replace the tools in the hole to check the flow. That the well actually produced at the rate of some 9,000 bbls. when the tools were withdrawn and present facilities for caring for the oil being inadequate, the tools had to be returned and the well curbed to its regular flow of 5,500 bbls. This well produced nearly 60,000 bbls. of oil during nine days, or more than $150,000 worth of oil at present posted price.

Important drilling tests in the Pioneer district are: Burger's No. 1 Harris is below the Pioneer pay sand depth and has water trouble, drilling at 2,555 feet. Fensland Oil Co.'s No. 1 White was shot with no response at 2,832 feet and is plugging back to 2,500 feet.

Keough and others' No. 4 Gooch is shut down, having missed the pay sand at 2,500 feet.

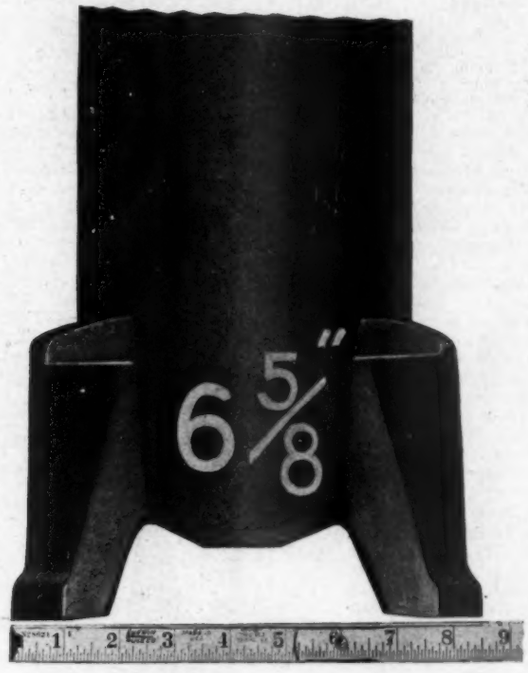
Wildcats

Archer County—Activities in Archer County are very pronounced considering the fact that this is a wildcat county, which, outside of the Gose Pool, has produced practically no oil. Tests are drill-


BAROMETER OF THE OIL INDUSTRY Vol 2. No 3.
March 1922.
Based on the
Annual Rate of Excess of Consumption or Production by Months
for Crude & all Liquid Petroleum Products.
Each Space on the Circles represents 6000000 bbls
When the Arrow points to the Left of "EQUILIBRIUM" it indicates that for the Month mentioned Consumption & Exports exceeded Production & Imports at the Annual Rate shown.
When the Arrow is shown on the Right Side of the Dial the opposite condition exists.
Note:
The Small Circle shows Total Stocks of CRUDE & all LIQUID PRODUCTS as held by Pipe Lines & Tank Farms, Refineries and Importers of Mexican Crude.
Note:
We use the Gross Pipe Line and Tank Farm Stock figures.
EQUILIBRIUM
Stocks Increasing
Stocks Decreasing
All Liquid Stocks are here given in millions of barrels.
March, one year ago
1093369439
Corrected
Feb 1922
Petroleum in the United States
For the Year 1922.
MID-CONTINENT OIL & GAS ASSOCIATION
385 Cosden Building
TULSA, OKLAHOMA.
Issued Monthly
File this for Future Reference
Prepared by
Isaac E. Way

The Wilson "Perfection" Underreamer

Actually REAMS MORE HOLE at each stroke of the tools than any reamer on the market. This not only enables faster reaming, but guarantees a properly reamed hole.



ABOVE cuts are reproductions of actual photographs of a 6⅝" Wilson "Perfection" Underreamer. Note the GREAT WIDTH of the CUTTERS and their ENORMOUS EXPANSION. All other sizes are made in proportion.

This in plain figures explains why a "keyseated hole" or a "spear job" is practically an unknown occurrance with users of Wilson "Perfection" Underreamers. Their extraordinary cutting capacity produces a perfectly reamed hole in which the casing never fails to follow. The Wilson "Perfection" Underreamer actually cuts ⅝ of the hole at each stroke of the tools, agaihst ⅜ of the hole as cut by other underreamers.

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WILSON & WILLARD MANUFACTURING CO.

2301 EAST VERNON AVENUE

LOS ANGELES, CAL.

ing or about to start operations in nearly all sections of the county and by the beginning of next fall a greater portion of this county will be thoroughly exploited. Barton and others' No. 2 Gose has a rig up to pump and will test at 1,586 feet in a 2-foot sand. Burton & Ruff's No. 1 Wilson is drilling at 1,700 feet. Dee & Bellport's No. 1 Cowan, which has been drilling off and on for over 2 years past, is drilling at 2,710 feet. Lester Miller and others' No. 2 Crawford is drilling at 915 feet. Platt and others' No. 1 Farmer is drilling at 320 feet. Scott & Gose's No. 1 Stewart is drilling at 915 feet. Staley and others' No. 3 Haggard is rigging up a rotary. Texhoma Oil & Refining Co.'s No. 21 Gose is bailing in an oil sand at 1,578 feet. This test is located in the old Gose Pool. One well was completed during the past week, the Texhoma Oil & Refining Co.'s No. 17 Gose showing 100 bbls. at 1,584 feet.

Hutchison County—It is reported from Amarillo that McGee and others' No. 1 Smith-Capers was drilled 6 feet in a black sand around 3,000 feet and that the test is showing a black, smoky oil gas. This showing is a little over 100 feet deeper than the sand which showed a little production some three weeks ago. The well will be drilled a little deeper. If it fails to make a producer it will probably be plugged back to first showing and shot. Gulf Production Co.'s No. 1 Dial is swabbing approximately 50 bbls. a day of heavy oil at 3,075 feet. The Coble-Haywood No. 1 Coble is shut down waiting on 6⅝-inch casing at 3,705 feet.

Carson County—The Gulf Production Co.'s No. 1 Burnett will probably be plugged back to one of the gas-producing sands and completed; total depth is 3,225 feet. No. 1 Wynne is running 20-inch casing at 370 feet. Humble oil & Refining Co.'s No. 2 Burnett is shut down for drill stem at 2,940 feet. Silk and others' No. 1 Burnett is drilling slowly in a lime at 2,830 feet. This well, in different sands, has approximately 20,000,000 feet of gas.

Clay County—Baldwin Bros. and others' No. 1 Joyce is drilling at 210 feet. Lone Star Gas Co.'s No. 3 Edrington is fishing for lost bit at 2,186 feet. Nebraska Oil & Gas Co.'s No. 1 Myers is drilling at 2,585 feet. Petrolia Musselman Co.'s No. 2 Kempner is a derrick.

Montague County—Anchor & Green's No. 1 Crenshaw is a rig. Bowie Chief Oil Co.'s No. 1 Boedecker is drilling at 910 feet. Petroleum Producers Co.'s No. 1 Meadow is a standard rig just being erected. Raymond Oil & Development Co.'s No. 1 Summerour is pulling 6-inch casing at 1,000 feet.

Jack County—Baret and others' No. 1 Leatherwood is shut down for 16½-inch casing at 1,640 feet. Ralco Oil Co.'s No. 1 Loving has set 8¼-inch casing at 2,735 feet. Will have to pull and underream; total depth 2,760 feet. Roxana Petroleum Co.'s No. 1 Williams is the deep test that created considerable of a flurry in oil circles on account of showing both oil and gas about two months ago, and is cementing 5⅛-inch casing at 4,520 feet. Its present production is too small to make it a commercial producer.

Brown County—Brown Production & Refining Co.'s No. 4 Williams, fishing for lost tools at 1,780 feet. Crabb & McNeil's No. 1 Star, fishing for tools at 1,550 feet. Joe Cullinan and others' No. 1 Stone, drilling at 1,520 feet. Iron City Oil Corporation's No. 1 Turner has set casing and will drill at 2,355 feet. Infield Petroleum Co.'s No. 1 Windham, drilling at 450 feet. Leonard and others' No. 1 Prather, fishing for tools at 610 feet. Sen-Tex Oil Co.'s No. 1 Sudderth, drilling at 450 feet.

Mitchell County—Underwriters Production & Refining Co.'s No. 2 T. P., shut down for casing at 215 feet. Reno Texas Land & Oil Co.'s No. 1 Conoway is drilling at 3,220 feet. Travelers Oil & Development Co.'s No. 1 Landers, shut down at 4,015 feet. Spalding and others' No. 1 Morrison is drilling at 1,820 feet. Several other tests in this county are shut down at different depths waiting on casing.

Palo Pinto County—Ashe Syndicate's No. 1 Hart, fishing for tools at 1,125 feet. Dehart & McKay's No. 1 Seaman, drilling at 325 feet. Littlefield Oil & Gas Co.'s No. 1 Smith, drilling at 1,615 feet. McDowell & Casey's No. 1 Carter, drilling at 1,265 feet. Milton & Floyd's No. Malry, drilling at 450 feet. Nash & Windfor's No. 1 Eubanks, drilling at 420 feet. Burkett & Wheeler's No. 4 Wheeler, drilling at 2,500 feet. Revere Oil Co.'s No. 1 Caudill, hole full of oil, rigging up to drill deeper at 3,475 feet. Roddy and others' No. 1 Carter is a rig. Strong & Co.'s No. 1-A Seaman, shut down, hole full of oil at 3,170 feet. Smith and others' No. 1 Seaman, rig blown down, hole full of oil at 3,170 feet. Sun Co's No. 1 Hart, pulling big pipe at 3,965 feet. Seaboard Oil & Gas Co.'s No. 1 Costello, fishing for tools at 1,450 feet. Taylor and others' No. 1 Delraquet, drilling at 1,760 feet. Texhoma Oil & Refining Co.'s No. 1 Collett, fishing for casing at 3,605 feet. Transcontinental Oil Co.'s No. 3 Lane, hole fll of oil, cleaning out to shoot at 3,265 feet; No. 4 Lane flowed 400 bbls. of oil and is drilling at 3,120 feet; No. 5 Lane is drilling at 2,150 feet.

Parker County—Conner and others' No. 1 Rennols is drilling at 1,000 feet. Hale & Knight's No. 1 Bradley is shut down and may be abandoned. Jackson & Cathcart's No. 1 Emberlin is drilling at 2,200 feet.

Shackelford County—Hill and others' No. 1 Conrad is drilling at 650 feet. Humble Oil & Refining Co.'s No. 1 Poindexter is drilling at 2,810 feet; No. 2 Poindexter is drilling at 1,660 feet. Scott & Witts' No. 1 Truehart is showing gas at 3,435 feet. Weaver and others' No. 1 Lynch is drilling at 1,620 feet.

PRODUCTION REPORT

Week Endnig May 26

Burkburnett	
American Refining Co	550
Gulf Production Co	1,550
Humble Oil & Refining Co	950
Kansas & Gulf Oil Co	1,800
Livingston Oil Co	375
Magnolia Petroleum Co	3,000
McMahon Oil Co	900
Middle States Oil Co	575
Margay Oil Co	550
Oklahoma Petroleum & Gas Co.	600
Panhandle Refining Co	900
Ryan Petroleum Co	550
W. G. Skelley Oil Co	550
The Texas Co	1,881
Texhoma Oil & Refining Co	600
Weber Interest	625
Miscellaneous	16,350
Total	32,306
Electra	
Gulf Production Co	1,025
Magnolia Petroleum Co	3,500
Middle States Oil Co	1,250
Panhandle Refining Co	100
The Texas Co	5,166
Miscellaneous	3,900
Total	14,941
Iowa Park, Holliday, Petrolia	
Iowa Park—	
Gulf Production Co	275
Miscellaneous	2,360
Holliday—	
Texhoma Oil & Refining Co	1,400
Miscellaneous	550
Petrolia—	
The Texas Co	116
Miscellaneous	250
Total	4,941
Stephens County	
Gulf Production Co	3,825
Humble Oil & Refining Co	3,550
Magnolia Petroleum Co	1,575
Prairie Oil & Gas Co	3,250
Sinclair Oil & Gas Co	450
Sun Co	900
The Texas Co	4,700
T. & P. Coal & Oil Co	2,750
Midkansas Oil & Gas Co	5,875
MisceNaneous	15,550
Total	44,425
Eastland	
Humble Oil & Refining Co	100
Gulf Production Co	625
Magnolia Petroleum Co	625
Prairie Oil & Gas Co	975
Sinclair Oil & Gas Co	1,000
The Texas Co	450
T. & P. Coal & Oil Co	1,375
Miscellaneous	7,950
Total	13,100
Other Fields	
Young—	
Gulf Production Co	600
North American Refining Co	375
Oklahoma Petroleum & Gas Co.	625
Miscellaneous	8,700
Panhandle Refining Co	400
Comanche—	
Humble Oil & Refining Co	450
Magnolia Petroleum Co	900
Prairie Oil & Gas Co	100
Sinclair Oil & Gas Co	100
The Texas Co	100
Midkansas Oil & Gas Co	275
Miscellaneous	9,850
Brown—	
Miscellaneous	600
Coleman—	
Miscellaneous	100
Mitchell—	
Miscellaneous	150
Moran—	
Miscellaneous	150
The Texas Co	150
Strawn—	
T. & P. Coal & Oil Co	300
Miscellaneous	2,500
Total	26,425
Total All Fields	136,138
Total Last Week	134,009
Gain	2,129

East-Central Texas Field

By RAY H. WHITNEY

Interest in Southern Navarro County supercedes that of Mexia Field while the discovery of a new sand by a wildcat test in Milam County, which completion has appearances of good pumper, is regarded as important feature. Mexia production declines nearly 5,000 barrels daily. Total production to May 1 is 23,070,603 barrels. Runs, deliveries and storage figures announced.

MEXIA, Tex.
May 29.

Interest in the East Central district during the week was centered in southern Navarro County, which supplanted the Mexia Field, in Limestone County, in the point of interest. The completion of two wells added new interest to this development and three others that have been making gas are showing a fair oil production, which will give added strength to the possibilities of this important area. This pool has been very slow in the making and on several occasions the producers have just about given up hope, but right now the development looks better than it has at any other time.

One thing that has been noticeable with every completion at Currie is the over-estimate of the production of the producing wells. At the present time there are six producing wells at Currie, and it looks as if two gassers would develop an oil production as soon as the gas pressure is exhausted. The next several weeks will be of importance in this promising development, as several outside tests are due to get the pay sand.

In the Mexia Field, in Limestone County, only average wells made up the week's work. There were very few completions reported, and they were not important as to size. There are a number of outside tests due and with those that are drilling in advance of the Freeman property some idea will be had as to which way the field may be extended.

Wildcat Reaches New Sand

Another spot that is very attractive at this time is in Milam County, where a wildcat test has struck a new sand at 1,200 feet, that has all the appearances of making a good pumper. This test is 7 miles to the east of the shallow sand production in the Rockdale-Minerva Pool. If wells averaging between 25 and 50 bbls. can be developed at this depth, then a new shallow sand field of prominence may be expected. The owners are Harry Beeler, Henry Bell and S. A. Guiberson, Jr. Acreage already has jumped out of sight and considerable new work will result in the next several weeks. It is thought that the new producing level is the Corsicana sand.

Going northward from this is found Falls County, and 7 miles from Marlin the Grey-Hennessey well is making around 35 bbls. daily at 1,040 feet. This has opened another shallow sand territory that holds out good inducements and already plans have been made for the thorough testing of this country. All the large companies have representatives here and are buying protection.

Production to Date at Mexia

Since Mexia became so prominent in the production of petroleum, up until the first of May, it had produced a total of 32,070,603 bbls., according to authentic figures just compiled. The total amount of oil in storage on this same date was 13,280,726 bbls., showing that 9,789,877 bbls. had been shipped out of the field by the various pipe lines or the tank-car route. The total storage capacity in the Mexia Field is approximately 20,000,000 bbls. During April the tank-car ship-

BARBECUE PICNIC HELD TO CELEBRATE GROWTH OF PIONEER OIL FIELD

WICHITA FALLS, Tex., May 30.—One of the greatest oil field celebrations and demonstrations ever arranged in this section was held today at Moore's Grove, near the town of Pioneer, in honor of the gigantic strides that have been made in the Pioneer Pool in southwest Eastland County since the pool was opened recently. The affair was in the nature of a barbecue picnic, with sports of various kinds, music and speeches. Oil men from all sections of the North Central Texas fields and from other districts in Texas and Oklahoma joined in the celebration, speeches depicting the growth of the field and what it meant for this section being made by men prominent in the petroleum industry.

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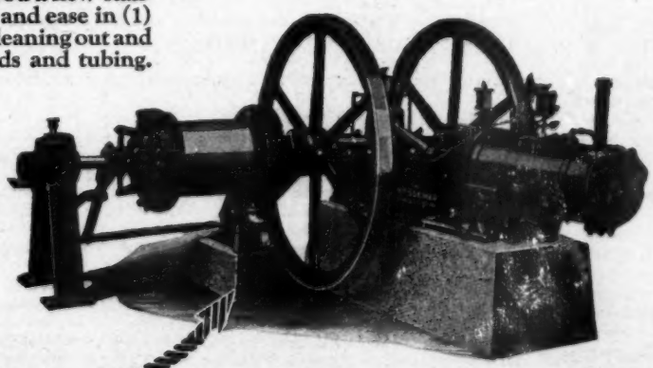

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BESSEMER OIL FIELD ENGINES—COMPRESSORS VACUUM PUMPS—ROLLER PUMPING POWERS

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ments averaged approximately 9,600 bbls. daily.

To date the month of January has been in the lead in production. During this period, the receipts amounted to 5,087,007 bbls., the deliveries were 1,961,099 bbls., and at that time there were 6,456,705 bbls. in storage. In February the runs were 4,999,215 bbls., the deliveries were 1,783,473 bbls., and there were 9,272,447 bbls. in storage. March proved to be a little better, showing runs totaling 4,628,206 bbls., deliveries of 1,684,454 bbls., and 12,216,199 bbls. in storage. In April the runs were 3,024,159 bbls., the deliveries 1,930,920 bbls., and storage 13,280,726 bbls.

During 1921 the Mexia Field produced 5,732,016 bbls., the deliveries were 2,401,219 bbls., and there were 3,330,797 bbls. in storage.

During April the figures show that the Humble Oil & Refining Co. was the second purchaser in the field, being credited with 612,964 bbls., of which 596,915 bbls. were deliveries. At the close of April this company had 3,215,015 bbls. in storage, being the leader in that respect. The company still has available approximately 490,000 bbls. of storage capacity.

The Prairie Pipe Line Co. was the leader in the Mexia Field, but it has now withdrawn except to fill a little storage, closing down its pipe line from the northern portion of the State to Mexia, on account of congestion in Oklahoma. During April this company showed runs totaling 656,338 bbls. and deliveries of 596,195 bbls., and a storage of 1,745,709 bbls., and approximately 524,000 bbls. capacity yet to be filled.

Runs of Other Concerns

The Sinclair Crude Oil Purchasing Co. was third in the purchase of crude during April, being just a bit behind the Humble Oil & Refining Co., 612,832 bbls. being its monthly run. There were no deliveries, all the oil going into storage, of which the company has 2,570,652 bbls. and 975,340 bbls. capacity yet to be filled.

Fourth postion was held by the Magnolia Petroleum Co., with 332,547 bbls. runs, 298,052 bbls. deliveries, and 1,371,065 bbls. in storage. The company still has 646,650 bbls. to be filled. The Texas Co. was next with 207,138 bbls. runs, 55,446 bbls. deliveries, and 257,733 bbls. in storage. It still has 282,185 bbls. of space. The Atlantic Oil Producing Co. run 172,887 bbls., delivered 123,294 bbls., all of which was its own production. This company has 166,231 bbls. in storage and has 288,000 bbls. of space left. This company had some lines into the field, but it is understood that the Magnolia Petroleum Co. has taken over the gathering system.

The Gulf Production Co. run during April 85,198 bbls., and delivered 57,749 bbls. of this. At the close of April it had 468,023 bbls. in storage and still had 180,000 bbls. of space. The American Petroleum Co.'s runs for April showed 61,201 bbls. and no deliveries. The company has 370,633 bbls. in storage and 170,000 bbls. space remaining. The Arkansas Natural Gas Co. run 5,756 bbls. during the month, all into storage, giving it a total storage of 29,523 bbls., and 79,000 bbls. of space. The Bell Oil & Gas Co.'s runs were 18,182 bbls., all of which was shipped by the tank-car route. This company has no storage at Mexia except a few receiving tanks. The Houston Oil Co. run 17,540 bbls. and delivered 384 bbls. It has 234,924 bbls. in storage and 89,000 bbls. more space.

The Humphreys Oil Co. run during April 164,925 bbls. and shipped 85,384 bbls. This company has 2,067,610 bbls. in storage and still has a tank capacity of 1,712,390 bbls. to be filled. It has by far more tankage to fill than any other company. The pipe line of this concern has been finished to a point near Beaumont, a distance of nearly 200 miles and the company at present is shipping around 17,600 bbls. daily for the first time. The Imperial Refining Co.'s April runs were 29,963 bbls., all of which went into storage, of which the company has 82,437 bbls. filled and 33,500 bbls. of space left. Only 11,633 bbls. was run by the Kirby Petroleum Co., and the deliveries were 29,090 bbls., showing that some crude was taken from storage, which cleaned it up. There still remains 216,000 bbls. of space to be filled.

The National Oil & Pipe Line Co. handled no Mexia crude during the month of April, but still has 108,000 bbls. of storage. The Rio Grande Oil Co. run 11,430 bbls., all of which was shipped to its El Paso plant. The Simms Oil Co. run 16,625 bbls. and shipped 30,106 bbls., leaving 235,812 bbls. in storage, and 96,180 bbls. of space. The Sun Co. handled no oil, but has 108,000 bbls. of storage. The U. S. Texas Oil Corporation had no runs or shipments, but has 5,520 bbls. in storage and room for 264,480 bbls. more. No runs or shipments were credited to the Utilities Co., although it still has 99,839 bbls. in storage and room for an additional 116,160 bbls. The White Eagle Oil & Refining Co. has cleaned up all of its oil. No runs were made, but 31,693 bbls. were shipped. The company has no storage. The Western Oil Fields Corporation had no runs or shipments, but has 108,000 bbls. of available space. Dr. F. L. Thompson has 54,000 bbls. of empty space.

A perusal of the figures will show that the actual amount of oil run out of the Mexia Field during April was 3,024,159 bbls. and that 1,930,920 bbls. was shipped by pipe line or the tank-car route. The amount of oil in storage was 13,280,726 bbls. and the available storage was 6,697,570 bbls.

New Wells at Currie

The completion of two wells at Currie, in Southern Navarro County, has brought that locality back into the limelight and it shows conclusively that it will be heard from in the near future. Developments up until this week have proven sort of a nightmare to the operator, but now they think the pool will come up to all that was expected of it several months ago when the initial well on the Meador farm was finished by the Humphreys interests. The McGaw well added this week was to the southwest of the other producing wells and it shows that this direction must now be taken into consideration. This well belongs to the J. K. Hughes Development Co. and is good for 1,600 bbls. daily.

It is just a location away from the McGaw test of the HomOkla Oil Co. which came in a gasser several weeks ago, in the Woodbine sand, but which is now spraying approximately 50 bbls. daily. When this gasser as well as the one on the Mattie Bounds farm, belonging to the Newblock Oil Co. was finished it looked as if the chances to the southwest were out of the running on account of the heavy gas volume, but now there is a different story to tell. With both the McGaw and Bounds gassers showing oil this country has now assumed a new aspect and developments will be of more interest.

The other well finished belonged to the Humphreys Oil Co. and was the fifth test on the Meador farm, and it is rated good for 1,000 bbls. daily. It is the second producer on the tract, as No. 3 proved to be a salt water well. This last one was a quarter of a mile north of the discovery well. As far as developments have gone, it looks as if the Meador farm will be the northeast producing end of the field.

Pool Has Gas Pressure

The Currie district will not be as large as the one to the south at Mexia, but it will make a fair sized pool and some good wells can be expected. In this field the pressure is a gas one, while at Mexia it is hydrostatic and for that reason wells of longer life will be the result. However, there are a few wells at Currie now showing signs of water.

With the completion of these two wells it gives the pool a total daily production of approximately 3,740 bbls. from the Woodbine sand and 590 bbls. from the shallow sand. The Humphreys Oil Co. leads with 1,830 bbls. from four wells. The English is making around 500 bbls. daily, the Cole 250 bbls., the Meador discovery well 80 bbls., and the Meador No. 5 is making 1,000 bbls. The Snowden-McSweeney well is good for 300 bbls. and the Hughes well, 1,600 bbls.

Field Is Extended

Several weeks ago the Snowden & McSweeney test on the Blanchard (Longbottom) came in good for 15,000,000 cubic feet of gas, in the Woodbine sand around 2,985 feet. Now the gas pressure has subsided and the well is making oil and at a last estimate it was good for 300 bbls. daily, extending the field and giving the pool a much more important look. When it first came in a gasser interest waned, but now the producers are all making arrangements for an active drilling campaign.

It is just a few miles to the northeast of Wortham and now that country all the way to Currie, a distance of six miles, looks very good. In these columns a few weeks ago it was said that the country from the Bounds well north and northeast looks very good and it can be said, that it even looks better now.

It will take careful drilling to develop the resources of southern Navarro County, as the structural conditions so far have proven rather erratic. The country three and one-half miles to the northeast around the West gasser is also more interesting due to the fact that the Seay-Cranfill well is showing approximately 10 bbls. of oil, but it is also showing some water.

The next 90 days should develop some good wells in this territory from Wortham on north and with a few wells due at Currie, the production should show an increase. The next well due is the second test on the Cole farm, of the Humphreys Oil Co., which is showing 15,000,000 cubic feet of gas and spraying some oil. This is in proximity to the good oiler finished several weeks ago on the same farm.

The other portions of Navarro County still hold out inducements, but so far the various wildcat tests have failed to tap anything of interest, with the exception of the Simms Oil Co.'s test near Angus, which is due to get the Woodbine sand within the next week or ten days.

Was a Slight Falling Off

A quiet week caused Mexia production to slump and the daily average production for the week was 84,750 bbls., or nearly 5,000 bbls. less than the previous week's report. The Humphreys Oil Co. and a number of others showed a falling off as no wells of any consequence were reported. The production from the Currie Field, in Southern Navarro County, is not included in these totals.

The following shows how the production was distributed among the various companies during the past week:

Company—	Bbls.
Humphreys Oil Co.	36,000
Humble Oil & Refining Co.	7,600
Danciger Oil & Refining Co.	7,400
Magnolia Petroleum Co.	4,700
J. K. Hughes Oil Interests	4,000
Western Oil Fields Corporation	1,500
Harry Parker Interests	3,000
Atlantic Oil Producing Co.	4,200
Gulf Production Co.	2,200
Simms Oil Co.	2,200
Monarch-Kirby Interests	1,800
The Texas Co.	800
Owenwood Oil Corporation	350
Houston Oil Co.	550
Tidal Oil Co.	600
Haskell Interests	350
Kirby Petroleum Co.	500
Ben Ross & Co.	2,000
Others	2,000
Total	81,750
Total Previous Week	89,705

Only a Few Completions

A quietude prevailed over the Mexia Field, that has not been equalled at any time during the present year. There were numerous tests due, but they just failed to reach the depth where they should have tapped the sand. On at least a dozen wells the plugs are being drilled out and they are due to get the sand within the next few days. Several of the tests are in advance of the producing area and, therefore, are of more than minor importance.

The Humphreys Oil Co. has moved into its spacious new office at Mexia and from now on the majority of the business will be handled from there. Early in the year it was announced that the main offices would be established in Dallas, but they have all been moved back to Mexia with the exception of one small branch. It was found to be too far away from the seat of operations to be profitable and then the company is assuming a more conservative basis as its expenditures have been away in advance of its income, despite the fact that its production has been around 40,000 bbls. for a long time.

The new plant covers approximately two square blocks at Mexia and consists of the main office building, garage, men's and women's separate bungalow dormatories, hospital with medical and nurses' headquarters, warehouses, play grounds, tennis courts and every business convenience combined with all the comforts.

The wells developed during the week were not large, but several tests are due on the Freeman farm that may add a good sized flush. There has not been a well finished since the Ross well on the Freeman came in good for 3,000 bbls., and it is now making 2,000 bbls. The Danciger Oil & Refining Co.'s No. 16 Sherrer is a 1,500-bbl. well and No. 20 is credited with making 1,000 bbls. the first day. This is just south of the Freeman tract. Two wells are reported on the Rogers farm, but the Humphreys Oil Co.'s Nos. 8 and 9, good for 400 and 1,000 bbls., respectively. No. 20, on the West Berthelson farm is a 400-bbl. well and No. 16 Thomas is good for 1,000 bbls.

In advance of the field, in wildcat portions of Limestone County, the Mexia Extension Syndicate on the Williams has been abandoned at 3,370 feet and the Mexia Oil Syndicate on the Long has a failure at 3,200 feet. In Freestone County, the Bison Oil Co.'s No. 1 Thompson has been abandoned at 2,000 feet, and Blair & Co. on the McClelland, in Navarro County, has a duster at 3,230 feet.

NEW SAND STRUCK BY WILDCAT TEST IN MILAM COUNTY SEVEN MILES FROM SHALLOW PRODUCTION

MEXIA, Texas, May 29.—A wildcat test in Milam County, Texas, seven miles east of the shallow sand production in the Rockdale-Minerva Pool, is exciting great interest in that district owing to the fact it struck a new sand at a depth of 1,200 feet and has all the appearances of making a good pumper. If wells averaging 25 or 50 bbls. can be developed at this depth, a new shallow field of prominence may be expected in that district. Owners of the wildcat are Harry Beeler, Henry Bell and S. A. Guiberson, Jr., all of whom had good production in the Mexia Field.

Acreage already has advanced greatly in price and considerable new work is expected to be done in the district. It is thought the new producing level is the Corsicana sand. In drilling the test, a gas blowout occurred at 850 feet and mud was shot out of the hole on a number of occasions. The well is being drilled on a block of 7,500 acres. The geology was worked out by W. A. Foster, who had a part in aiding the location of the Rogers well for Colonel Humphreys at Mexia.

STANDARDIZES ON PERFECTION!

A battery of eight tanks (photograph at right) owned by the Phillips Petroleum Company in the Henryetta district, Oklahoma. Every one is a PERFECT VAPOR PRESSURE Tank. According to officials of the company, the saving from evaporation losses is almort incredible.

How Perfection Vapor Pressure Tanks Meet Pressure Developed by Heat

By CHARLES P. BUCK, *Designer*

The temperature of the air inside the average stock tank, for obvious reasons, is much higher than outside. Naturally in a gas-tight tank, with the increase in temperature, a vast increase in pressure is noted.

Tests in the field have shown that when we enclose air at an atmosphere of 80° and a pressure of one atmosphere and the enclosed air is raised 115°, an increase of 0.95 pounds per square inch is noted, or approximately 1 pound.

To meet that increase in outward pressure is why PERFECTION VAPOR PRESSURE tanks have unusual provisions in construction. They are built to withstand the great strain caused by the pressure. Take for instance a 150-bbl. standard tank. On the deck, it has an area of 24.796 square inches.

With a 33° increase in temperature and the resulting one pound to the square inch in pressure, the total outward increase in strain amounts to approximately 24,796 pounds, or more than 12 tons.

Think of it—12 tons— and then imagine the average so-called gas-tight tank remaining gas-tight!

But PERFECTION VAPOR PRESSURE TANKS do withstand that pressure. The decks and bottom are tied together with eight tie braces of unusually heavy construction. Each one carries its proportional part of the 12 tons in increased pressure.

And here is where we have made the PERFECTION oustanding above all others: We realized it was practically impossible to build a tank at a moderate cost that would stand pressures in excess of 1 pound to the square inch and remain gas-tight. At that point the patented relief valve begins to function and relieves the pressure, allowing only the lean gas in the top of the tank to escape, but leaving the rich vapors on the surface of the oil.

That's why the PERFECTION Vapor Pressure stock tanks remain gas-tight.

Note.—Other technical phases will be discussed by Mr. Buck in subsequent issues of The Oil and Gas Journal.

The Phillips Petroleum Company, one of the largest operators in the Mid-Continent, is standardizing on PERFECTION VAPOR PRESSURE STOCK TANKS for its lease equipment.

And why? Simply because, after a thorough trial, this big company is convinced that the PERFECTION line has solved the evaporation problem.

You, too, can stop your evaporation losses and foil the silent thief that is constantly cutting down your pipe line returns. Call our near service station. Competent engineers will gladly look over your lease and make an estimate as to your requirements.

Don't forget that PERFECTION VAPOR PRESSURE TANKS will pay for installation in a short time, and that the fool-proof relief valve is always on the job, ever ready to render efficient service, no matter how high the temperature.

Remember also that the PERFECTION line includes the combined FLOW TANK AND GAS SEPARATOR which solves the fuel problem.

SERVICE STATION: A complete and efficient oil field service is maintained in most of the important fields of the country, where wood, bolted steel and vapor pressure tanks may be obtained. Service stations by States follow:

OKLAHOMA—Apperson, Bartlesville, Bigheart, Blackwell, Bristow, Cement, Drumright, Duncan, Garber, Henryetta, Healdton, Hominy, Kaw City, Kiefer, Pawhuska, Tulsa, Walters, Wynona.

KANSAS—Augusta, El Dorado, Florence, Grenola, Gridley, Independence, Sedan, Virgil.

TEXAS—Breckenridge, Burkburnett, Graham, Mexia, Ranger, Rising Star.

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Gulf Coast Oil Operations

By P. L. McGREAL

Advance of 25 cents a barrel in credit balances announced during week for Orange crude. Hull Pool supercedes Orange in production and interest, two big wells there holding up production. Yount-Lee Oil Co. well, after being deepened, came in at 6,300 barrels, increasing this later to 7,500. Little activity in Orange Pool, where development costs are high. Daily production higher in whole field.

HOUSTON, Tex.
May 29.

An advance of 25 cents per barrel in the credit balance quotations for Orange crude was announced during the week by the pipe lines, bringing the price to $1.25 in harmony with the other pools. A gas blow-out in the Vinton Pool, one-half mile from production on the west side at 4,020 feet, was a feature of the week in the Coastal country. The estimated daily average gross production for the week, including the light gravity field at Somerset, is placed at 112,305 bbls., compared with an estimate of 110,945 bbls. last week.

The average for each pool is as follows:

Pool—	Bbls.
Batson	1,210
Blue Ridge	1,250
Dayton	105
Damon Mound	3,100
Edgerly	280
Goose Creek	13,600
Humble	5,900
Hull	21,500
Jennings	450
Markham	90
Orange	15,640
Pierce Junction	2,960
Spindletop	310
Saratoga	1,815
Sour Lake	4,550
Somerset	1,310
Vinton	3,385
West Columbia	33,700
Welsh and Anse La Bute	105
Miscellaneous	545
Total	112,305

The Hull Pool took second place in the list during the week, replacing Orange. The completion of two big wells on the north side of the Hull Dome is responsible for the increase in that district. No. 1 Stengler of the Yount-Lee Oil Co., which came in about the middle of April, is still putting out 5,700 bbls. per day. The same company deepened No. 1 Merchant, located 300 feet to the west, to 3,000 feet during the week and it started off at 6,300 bbls. per day, increasing as it cleaned itself until Friday's gauge showed better than 7,500 bbls.

Interest in Hull Pool

These two wells and gas blow-out last week on the same side have attracted attention to the north of the dome and much work will be done during the next six months. It will take that period of time, or longer to determine the real value and extent of the producing area. This side of the dome has been neglected since the pool was opened in 1917 because three or four failures mark the territory to the west of the last wells in.

The Gulf Production Co. is now drilling No. 8 Scarborough, north of the Stengler, at 1,760 feet, and moving in material for No. 9. The Yount-Lee Oil Co. is starting No. 2 Stengler, south of No. 1. The latter is on a strip that is in dispute between the owners and the Gulf Production Co., hence No. 2 has been located back from the line marking the disputed strip. The Hull Pool is like every other South Texas district in that every time a large well is brought in in new territory the question of title bobs up. These title claims are so common that but little attention is given to the filing of the suits unless something new is put forth as a basis. The usual claims upon which two-thirds of the suits are based are "recently discovered heirs, "illegitimate children" and "vacancies," meaning inaccurate surveys.

The Higgins Oil & Fuel Co. has started No. 2 Merchant, moving over from the blow-out for a new hole and the Houston Production Co. has a rig in for No. 2 Stengler. The Grayburg Oil Co. has a location for No. 1 Taylor and is getting in derrick timbers. The Thies Oil Co. has a location for No. 1 Stengler, 10 acres for which it paid a bonus of $45,000, one-half in cash.

The Republic Production Co. is rigging for a test on the west side of the hill, where two holes were drilled to 1,100 feet in 1915 and quit in rock after the derricks had been demolished during the hurricane. Neither of these holes went deep enough to condemn that west side. On the east side, the same company is drilling No. 55 on its 800 Dolbear lease at 1,450 feet and working over No. 27, an old hole. The Republic Co. is preparing to use electricity for pumping wells. Parts of the Goose Creek and West Columbia Pools have been electrified for two years.

On the south side of the dome, the Humble Oil & Refining Co. is working over No. 6 Guedry and the Houston Producing Co. is drilling No. 10 Barngrover at 1,030 feet with the Monarch Oil & Refining Co. below 3,100 feet in No. 7 Harrison. The Empire Gas & Fuel Co. is working over Nos. 6 and 14 Barngrover and the Thies Oil Co. is working over No. 1 Stovell. The Gulf Production Co. is below 635 feet in No. 30 Phoenix.

Orange Pool

It has been one of the most uneventful weeks in the history of the Orange Pool since it opened. The completions in the old part were all light wells, many of them worked over. Unless something develops on the east side of Cow Bayou the pool is destined to go into the same class with Blue Ridge and Pierce Junction. In these districts operations have been conducted at a loss and it is doubtful if any of the large operators has made money in the Orange Pool, considering bonus prices paid for acreage and the cost of drilling. Saltwater has permeated pretty much all of the original territory.

The following table shows the daily average production of the various companies in the pool as of date of May 23:

Company—	Bbls.
Gulf Production Co	4,585
Humble Oil & Refining Co	3,645
Hamilton Oil Co	435
Atlantic Oil Producing Co	1,935
Edgerly Petroleum Co	1,450
Orange Petroleum Co	1,120
The Sun Co	600
Supreme Oil (Noble & Emerson)	600
Brownie Babbittee Oil Co	570
Thrift Oil Co	400
Monarch Oil & Refining Co	160
Sinclair Oil & Gas Co	75
Amerada Petroleum Co	70
Total	15,645

The Brownie Babbittee Oil Co. is tubing No. 5 Peveto at 3,170 feet to pump. The oil stands 2,600 feet from the bottom. The Humble Oil & Refining Co. has a pumper in No. 6 Chesson at 2,940 feet and is trying to work No. 2 Tasco on the south side of the pool. The Gulf Production Co. is bailing No. 2-A Chesson at 3,890 feet with one joint or 20 feet of 3½-inch strainer set. The same length of strainer was set in No. 2 Chesson at 4,100 feet. The Amerada Petroleum Co. No. 1 Kishi-Lang is a 200-bbl. well at 3,200 feet, after working it over setting 80 feet of 4½-inch strainer.

The activity is switching to the east side of Cow Bayou in the hopes of finding a more satisfactory sand and less saltwater. The sands in the old part of the pool are very fine and continually clog the screens. The salt water has been allowed to permeate the territory and it makes no difference whether 120 feet or 10 feet of screen is set, the results are the same. In the early days of the pool anywhere from 60 feet to 120 feet of screen was set, as is the rule in other pools. Then shorter lengths and finally the bit just went a few feet into the sands and but 10 feet of screen set, but the water came just the same.

On the east side, the Gulf Production Co. is drilling No. 3 Hager fee at 3,700 feet and No. 4 at 2,880 feet with No.'s 5 and 6 rigging. No. 1 Carrie Brown is below 2,900 feet. Collins, Farish and Watts No. 1 McGuire is below 2,600 feet and to the east of this the Gulf Co. is starting two tests. The Sun Co. No. 1 Brown is around 3,700 feet. The Humble Oil & Refining Co. is drilling No. 1 Paraffine on the north of the county road. On state land along the banks of the bayou, the Amerada Petroleum Co. No. 2 is below 3,000 feet with a location for No. 3. The Thrift Oil Co. has a derrick up for No. 3 McGuire. The Pruitt-Mexia Oil Co. is trying to pack off the water in No. 2 State land and has a location for No. 3.

Deep Holes Abandoned

The Humble Oil & Refining Co. abandoned four very deep holes in the Goose Creek Pool. No. 24 Sweet showed saltwater at 4,370 feet. No. 47 Galliard was junked with the drill pipe in the hole at 4,230 feet and Nos. 29 and 31 Schilling were failures at 4,025 feet. The Turnbow Oil Co. has a deep hole shut down at 4,335 feet in No. 9 Schilling. Operations in this pool show very little variation in depths from the report of last week.

Even the big companies in the Gulf country are finding deep holes very costly at the present prices for crude and it is said less of them will be drilled in the future. The small operator found them a luxury beyond his means long ago and quit.

On the northwest side of the dome at West Columbia, the Humble Oil & Refining Co. got salt water in No. 2 Wilson at 3,535 feet. The Texas Co. has No. 12 Hogg on air making 250 bbls. after working it over.

Practically all the work in the pool is now confined to what is called the northwest flank of the dome. Here 12 rigs are running by The Texas Co. drilling Nos. 8 and 9 Abrams, the Humble Oil & Refining Co. drilling four wells; the Southern Petroleum Co., one; Sun Co., one; Crown Oil & Refining Co., two; Abercrombie and Kavanaugh, one, and Hyde Petroleum Co., one. The latter is deepening No. 1 Nash from 2,910 feet where it bailed salt water.

On the east side of the dome, the Humble Oil & Refining Co. is drilling No. 33 Japhet at 3,405 feet and No. 34 below 2,650 feet with No. 18 working over. The Texas Co. has rigs on the east, northeast and north sides drilling six wells.

At Damon Mound, the Southern Petroleum Co. is setting 8¼-inch casing in No. 1 Southern-Japhet around 3,200 feet. It is on the southwest side of the hill. On the same side the Sinclair Oil & Gas Co. is drilling Nos. 24 and 25 Bryan and 13 Masterson with No. 2 Munson deepening. Its No. 12 Jackson on the north side of the dome is shut down. On the south side, Cullen and others are setting 6-inch casing in No. 2 Ward around 3,300 feet. The Hyde Petroleum Co. is deepening No. 1 Hilleyer and drilling No. 2 Richmond with No. 1 Lockwood rigged to start.

Blue Ridge and Pierce

The Amerada Petroleum Co. abandoned No. 1 West-Schenck on the south side of the dome at Blue Ridge after working over at 3,600 and 2,400 feet. Originally it was a small pumper. On the east side, the Gulf Production Co. is around 3,700 feet with No. 5 Luscher. The Kirby Petroleum Co. is below 3,700 feet with No. 1 Soderburg. The Sinclair Oil & Gas Co. has the deepest test in No. 1 Lee drilling below 4,085 feet. On the southwest side The Texas Co. is drilling No. 9 Robinson at 1,235 feet.

In the Pierce Junction Pool, the Gulf Production Co. abandoned No. 4 Cain in salt water at 4,150 feet and McSweeney and Snowden did the same with No. 4 Cain after testing at 3,950 and 3,750 feet and getting the salt water. Both were old holes worked over. The most interesting test now drilling at Pierce Junction is the Texas Coast Oil Co. No. 1 Settegast on the southwest side of t dome at 3,000 feet. The crew is getting ready to set 6⅝-inch casing. The Humble Oil & Refining Co. is setting 6⅝-inch casing in No. 2 Whitehead on the north side at 4,030 feet and drilling No. 2 Cooper around 4,000 feet. McSweeney and Snowden are below 3,600 feet with No. 6 Cain.

Hardin County Pools

In the Batson Pool, the Ada Bell Oil Co., Acorn Oil Co. and E. W. McGoldrick are each drilling one well in the old shallow sand section. In the Saratoga Pool, the Rio Bravo Oil Co. (S. P. R. R.) is working over Nos. 25 at 314 feet and the Paggi Oil Co. No. 1 McAlvery bailed salt water at 1,500 feet. The Cotton Oil Co. plugged back to 480 feet in No. 1 Gulf for another test.

In the Sour Lake Pool, the Lake Oil Co. No. 3-B K. Jackson is making 125 bbls. and Farish and others' No. 4 Jackson, 40 bbls. The Thies Oil Co. No. 1 Saxon is pumping 20 bbls. at 2,350 feet. M. E. Peveto is bailing No. 10 and the United Fuel Oil Co. is drilling No. 13 Fee at 1,120 feet with The Texas Co's No. 244 fee below 2,000 feet. Jackson is fishing in No. 6 Carpenter. Hardie and others' have a derrick for No. 18 Hardin and the Clara Oil Co. has started No. 1 in the old part of the pool with the Lake View Oil Co. rigged for No. 29 Hardin.

At Spindletop, Tyson and Trembly are bailing No. 1 at 850 feet. The Humble Oil & Refining Co. No. 1 fee on the southwest side of the dome at Barber Hill is a salt water hole at 3,600 feet The Texas Co. is around 1,200 feet on the north side of the hill there with No. 1 Scott. Hindman and others are starting No. 2 Japhet, on the southwest side. The other tests are idle.

South Louisiana

On the west side of the Vinton Pool, Marrs McLean's No. 1 Gray blew out early in the week at 4,020 feet. It came in about two months ago and made a flash of 5,000 bbls. around 3,600 feet, but sanded and had been deepened. The Just Oil Co. is drilling No. 1 Lyons, 400 feet to the southwest, at 1,000 feet. The

DAYTON
SERVICE CONNECTIONS

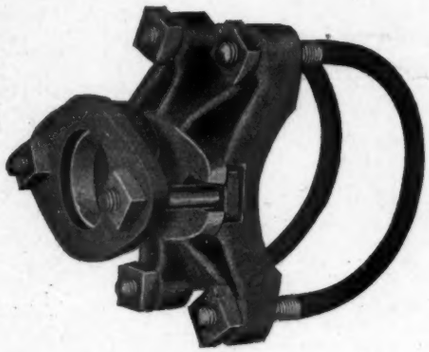


FIG. 22
COMBINATION SADDLE

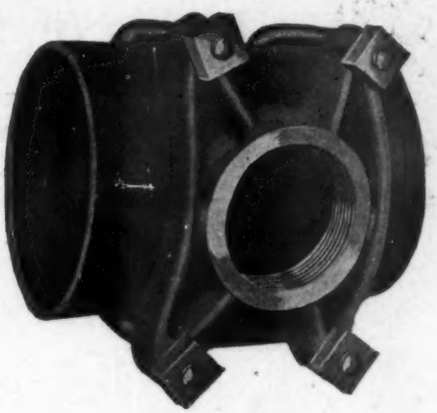


FIG. 21
STANDARD SADDLE

YOUR EVERY PIPE LINE REQUIREMENT FOR TRANSPORTATION and DISTRIBUTION

Write for Descriptive Circular

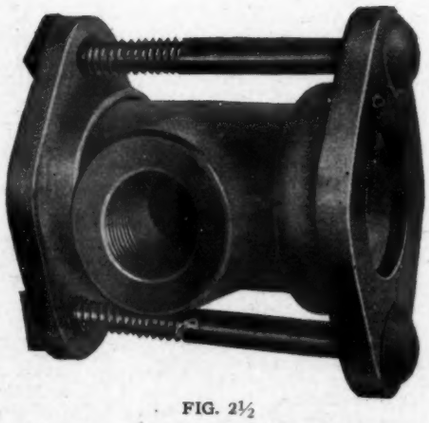


FIG. 2½
HOUSE SERVICE CONNECTION

FIG. 2
REGULAR COUPLING

THE DAYTON PIPE COUPLING CO.

DAYTON, OHIO

blow-out is about one-half mile from production and is the deepest hole in the pool. Within the pool limits as defined, the Gulf Refining Co. is working over No. 38 GN. G. and drilling No. 26 Star at 980 feet. The Vinton Petroleum Co. is drilling No. 33 Gray at 980 feet and deepening No. 1 Gray 40 acres. The Tanner Oil Co. is below 2,780 feet with No. 1 Vincent and The Texas Co. is deepening No. 12 Gray at 2,300 feet. The G. F. B. Oil Co. Lucky Four is a 10-bbl. pumper at 2,575 feet.

In the Anse La Bute Pool, the Gulf Refining Co. abandoned No. 7 Martin at 2,800 feet and in the Jennings Pool the Getty Oil Co. is deepening No. 2 below 2,235 feet. The Piere Pert Oil Co. got salt water in No. 1 Simmoux in Assumption Parish at 3,315 feet.

Semi-Wildcats

The Freeport Sulphur Co. is working to clean No. 9 Dannebaum on the northeast side of the dome at Stratton Ridge, Brazoria County. This is the well that came in May 12 at 4,370 feet flowing 1,500 bbls. pipe line oil and put Stratton Ridge on the map after many years of exploration work. It sanded last week.

The joint No. 1 Wheat ranch of the Gulf Production Co. and McSweeney and Snowden, seven miles south of Richmond, Fort Bend County, which has been flowing 300 bbls. by heads from a cap rock formation at 651 feet, has been shut in for the present after filling one 1,200-bbl. tank. The same interests are drilling No. 2 Wheat, located 1,200 feet west and north, at 376 feet and using the oil from No. 1 for fuel. Horn and others have a location north of the well and are getting in rigs

The Patton Oil Co.'s No. 1 on the dome at High Island, Galveston County, will probably make a 20-bbl. pumper at 155 feet in cap rock formation. It is making considerable sediment. The company, which is composed of Beaumont people, will drill three more of the shallow holes on the mound.

In the western part of the county, the Iona Oil Co. is below 2,150 feet. Dr. P. S. Griffith is drilling at 2,450 feet. The Neuhan Oil & Refining Co. is idle.

Fields of the Central West

By WHIT

The Central Ohio, Indiana and Illinois fields show little of importance. In Eastern Kentucky where a great deal of development work is being done, a number of fair sized wells were finished. The Hotmeir Pool in the Lima, Ohio, district shows two good wells.

FINDLAY, Ohio.
May 27.

Every available acre of land is being taken under lease on all sides of the old Lima Field and there should be a great number of tests drilled during the summer and fall season. The Trenton Rock section of the eastern part of Indiana is also being closely watched, especially along the division line of Jay and Randolph Counties, where during the week two wells starting at 65 and 90 bbls. were completed and in what is known as the new Hotmier Pool.

In the Centralia Field, in Marion County, Illinois, the best completion reported for the week was a 60-bbl. initial producer, but being drilled on a town lot it will have a short lived production at its best. There is less work doing in the Townlot Pool than was the case a week or so ago, indicating that the operators realize the folly of close drilling. A 25-bbl. well is also reported from the Bridgeport Field, of Lawrence County, which means a long life production, being drilled to a total depth of 1,710 feet with numerous pay sands from which to draw.

The rig is up for a test well 110 rods east of the postoffice at Napoleon, in Jackson County, Michigan, and Charles Croner, field manager is now purchasing a string of tools to do the work with and as soon as they are secured the first of three tests will be started. The wells are to be the property of the Jackson County Oil & Gas Co.

Eastern Kentucky Runs

The runs of the Cumberland Pipe Line Co., through its eastern Kentucky pipe line system, handled for the week a total of 79,459.29 bbls., for a daily average of 13,243.21 bbls.

Cumberland County

Cumberland County, Kentucky, is attracting considerable attention of late due to the completion a week or so ago by the McClintock Oil Co., and W. S. Raydure of a nice big well on the Hood farm, on Sulphur Creek. This well lies to the north of the wells drilled on the G. W. Coop, Jr., farm, and extends the pool at least a mile to the north, and practically showing for the best well in that particular area.

The No. 1, on the I. Y. Morgan farm, in Irish Bottom, is drilling and expected in at most any time. Should this well prove a commercial producer, it will greatly increase development work in that section, as the owners already have two nice wells on the L. D. Potts well, which joins the Morgan farm. Owing to the recent heavy rains operations have to some extent been checked and some new development work postponed for the present in Cumberland County.

W. S. Raydure, the well known oil operator of Bowling Green, Ohio, has started the drill on his No. 1 on the John Parrish farm, near Amandaville, having been delayed by the rainy weather for several days. This location is about 2 miles from the Irish Bottom Pool, above mentioned, besides being in the vicinity of some good wells, drilled several years ago. The Southern Oil & Refining Co.'s No. 1 T. M. Glidwell farm, is drilling at around 700 feet and should be completed within a few days. This well found a nice pay at 222 feet, but preferred to drill to the deeper sands before putting it on the pump. Strong gas flows were encountered at 290 and 440 feet.

To show the staying qualities of Cumberland County wells, it can be said after being pumped day and night for about eight months, No. 1 Margaret Hicks, on Brush Creek is pumping 29 bbls. a day. Jones & Patterson are temporarily on No. 1 F. F. Smith farm, on Cedar Creek, awaiting some additional supplies. The result of this well is watched with interest, as it is the first well to be drilled on Cedar Creek.

The Crescent Oil Co. is drilling at around 200 feet in No. 4 Lulu Keen farm, on Bear Creek. When this well is completed Nos. 3 and 4 will be put on the pump. C. A. Gartland and others are due in with their No. 1 on the Wix Donaldson farm, near Neely's Ferry, and down between 775 and 780 feet. The Associated Producers is drilling No. 2 G. W. Coop, Jr., farm. James A. Gartland has his rig on the location on the Millard Kerr farm, on Kettle Creek, and getting ready to spud in. This test is removed some distance from production and looked upon as a very important well.

Dr. E. E. Palmore and others are delayed by a fishing job at their No. 1 J. T. Smith farm, on Kettle Creek. James F. Fike, of Uniontown, Pa., after an absence of several months, has returned to Marrowbone and resumed drilling on his No. 1 J. M. Williams farm. This well was shut down last winter.

J. M. Dunkle, of Warren, Pa., has contracted with Guy Jordon, to drill a well on the Bud Groce farm, on Sulphur Creek. The drilling outfit is now en route from Glagow. This farm lies on what is known as the Casey's Fork prong of Sulphur Creek, and is 1 mile south and west of the wells on the G. W. Coop, Jr., farm and it will give quite an extension if it proves productive to the Coop Pool.

The Mutual Oil Co.'s No. 1 Irvin farm, on Indian Creek, Clinton County, is reported flowing from 900-foot depth. This well is 1½ miles south of the Reed Oil Syndicate wells on the Campbell Bros.' farm and makes the Creelboro Field look considerably better.

Eastern Kentucky Wells

In Wayne County, Marsh & Hatfield, drilled a dry hole in a test on the Sam Rankin farm. In Rocky Branch, McCreary County, the Beaver Petroleum Co.'s No. 10 Steele heirs' farm, produced 10 bbls.

In Campton district, Wolfe County, the Flahaven Land Co.'s No. 1 Hurst heirs' farm, and the Superior Oil Corporation's No. 2 Watson farm, were both dry holes.

In Busseyville district, Lawrence County, the Cumberland Petroleum Co.'s No. 2 Marida Kelley farm, produced 8 bbls.

In Johnson-Magoffin Counties, Thompkins & Seep's No. 1 Williams farm, showed 10 bbls; Eastern Petroleum Corporation's No. 6 C. C. Wright, 15 bbls.; Structure Oil Co.'s No. 12 John Blanton farm, 5 bbls., and the Mid-South Oil Co.'s No. 1 Steve Howard farm, 10 bbls.; Eastern Petroleum Corporation's No. 7 C. C. Wright farm, estimated at 15 bbls.; R. G. Gillespie's No. 1 Frank Moore farm, estimated at 10 bbls.; Unknown parties' No. 2 McCarty, 10 bbls.; Cumberland Petroleum Co.'s No. 7 Joseph Wheeler farm, estimated 30 bbls.; Union Gas & Oil Co.'s No. 8 James Skaggs farm, 35 barrels; No. 2 Joel Kelley farm, 18 bbls.; and No. 1 C. C. Holbrook farm, 5 bbls.

One dry hole is reported in Calloway County, two gas wells in Adair County, and one gas well in Lewis County.

Illinois Field

Illinois tests are not proving very prolific and the trade is having a hard time trying to open up new producing areas. In Irvington Township, Washington County, E. J. Jones drilled a dry hole in a test on the A. Dodiller, Section 25, and Gorman and others a dry hole in a test on the Frank Lazaerette, Section 30.

In Brookside Township, Clinton County, Weireback & Griggs got a dry hole at 800 feet in a test on the Griggs farm, Section 25, and the Four Squares Oil Co., one of the same kind at about the same depth in a test on the H. Volke, Section 23.

In Centralia Township, Marion County, Bowles, Curzon and others' No. 1 H. Gehr farm, Section 30, estimated at 10 bbls., and the Bays-National Drilling Co.'s No. 1 Rails & Grier, Section 30, at about 10 bbls. flush. G. W. Ewing and others' No. 1 S. P. Adams, Section 30, estimated at 60 bbls.

In Dennison Township, Lawrence County, the Ohio Oil Co.'s No. 11 Sherman Gray farm, Section 2, pumped 25 bbls. at from 1,578 to 1,710 feet, and Treat & Hays' No. 5 J. R. Lyon Section

CRUDE PRODUCTION IN KENTUCKY FOR 1922 ESTIMATED AT 9,000,000 BBLS. BY DR. JILLSON—FIELD GOOD FOR 60 YEARS

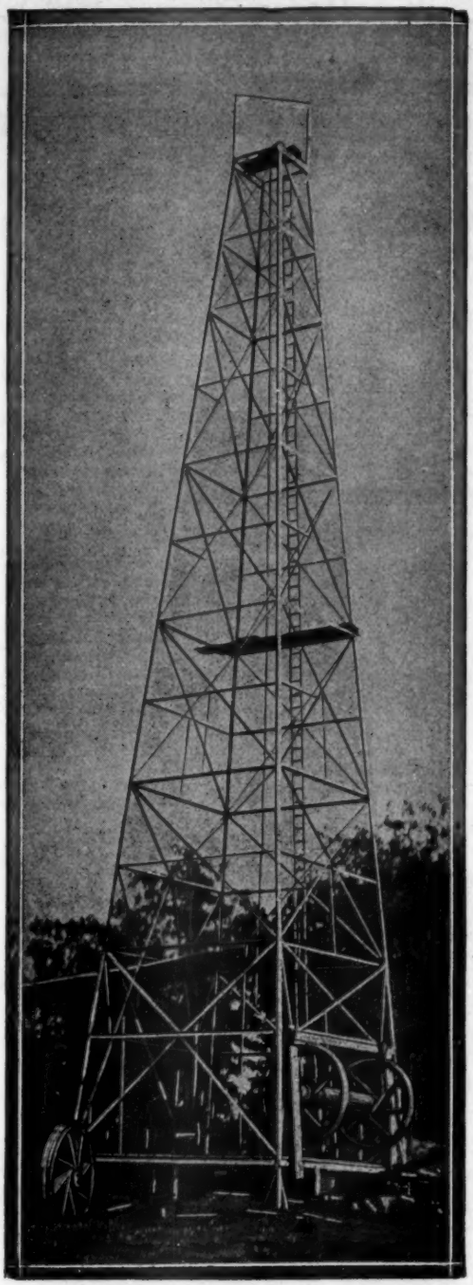
FRANKFORT, Ky., May 22.—Petroleum produced in Kentucky in 1922 will amount to approximately 80,000 bbls. less than the 1921 production, according to Dr. Willard R. Jillson, director and state geologist, who estimates the 1922 production at 9,000,000 bbls. as compared with 9,080,045 bbls. for 1921.

The estimate of Dr. Jillson places the 1922 production above that of 1920, which was 8,546,027 bbls., but below that of 1919 when the peak of production was attained with a yearly production of 9,226,473 bbls. and a position eighth among the oil-producing states.

The decreased oil production for 1920 was due to a slowing up of industry following the close of the war which induced lowered prices for crude oil, according to Dr. Jillson. A strengthening of the price of crude oil resulted in the extension and establishment of the oil producing industry in Kentucky during 1921, the production for that year being 534,818 bbls. more than the previous year.

Certain established factors based on economic and industrial life of this country, such as the increasing demand for gas engine gasoline, industrial lubricants and fuel oil, coupled with the central eastern location of the state, Dr. Jillson says, will tend as the years go by to keep Kentucky well up in the ranks of the oil producing states. These factors, he said, have operated in New York and Pennsylvania for many years and will operate in Kentucky to put off the day of final and complete depletion.

Dr. Jillson figures that the oil pools of Kentucky as now known and partly developed will still afford production through wells which are yet to be drilled, up until the year 1980. For this period, 1922 to 1980, inclusive, it is figured that the known pools of Kentucky will produce 120,000,000 bbls. of crude oil. Pools yet to be discovered, it is estimated, will produce 40,000,000 bbls., making a total of 160,000,000 bbls. of petroleum now in the ground. A total volume of 44,655,145 bbls. for the period 1883 to 1921, inclusive, was produced. From 1921 to 1980 Dr. Jillson figures a depletion of 120,000,000 bbls., which he says is a conservative estimate. V.T.W.



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19, pumped 3 bbls. at from 1,690 to 1,875 feet.

In Robinson Township, Crawford County, the Wilson Oil Co.'s No. 12 D. C. Wilson, Section 8, pumped 10 bbls. In Martin Township, Harry Simons and others' No. 2 C. Prior, Section 22, was dry. In Honey Creek Township, Bell Bros.' No. 8 Fred Maxwell, Section 3, pumped 1 bbl.; A. Frost and others got a dry hole in a test on the Alfred Frost, Section 30, and John Phillips and others one of the same kind in a third well on the Syntha Love farm, Section 26. In Licking Township, John Smith, attorney, drilled a dry hole in No. 6 Perry Miller, Section 25. In Oblong township, the W. G. Ross interests abandoned No. 1 on School Lot 61.

Indiana Field

Few completions are reported from Indiana during the week. In southwestern Indiana, in Madison Township, Pike County, A. B. Bement drilled a 5-bbl. pumper in No. 4 C. Waltz, Section 26, at 908 feet.

In Ward Township, Randolph County, Art Lay and others' No. 1 on the J. Parrett farm, Section 4, produced 65 bbls., and Skinner and others are drilling No. 2 Thomas Obryan, Section 3. In Monroe Township, Smith & Devore abandoned Nos. 1 and 2 D. A. Thompson, Section 34, and the Illinois Oil Co. its No. 1 John Gable, Section 10.

In Delaware Township, Delaware County, the Premier Oil Corporation's No. 4 D. J. Ogle, Section 18, pumped 10 bbls.

In Salamonie Township, Huntington County, M. J. Anderson's No. 1 W. Miller, Section 20, produced 25 bbls.

In Jackson Township, Jay County, the Karney Oil Co.'s No. 2 R. D. Wheat, Section 12, pumped 3 bbls., and in Pike Township, Skinner and others' No. 1 Thomas Obryan, Section 33, produced 90 bbls.

Lima Field

In the Lima Field of northwestern Ohio only a few completions were reported for the week. In Pleasants Township, Hancock County, D. L. Newton and others' No. 3 James Henry, Section 14, pumped 30 bbls. In Union Township, Harpst Bros.' No. 6 H. Schwinn, Section 1, pumped 25 bbls. In Eagle Township, Porter and others' No. 7 J. H. Haley, Section 6, pumped 30 bbls.

In Amanda Township, Allen County, John B. Sawmiller & Son's No. 4 I. Shenk, Section 23, pumped 5 bbls. In Moulton Township, Auglaize County, Kelly Bros.' No. 1 James Butcher, Section 12, was dry, and Wolfe Bros.' No. 1 N. Kelly, Section 17, was also dry.

In Woodville Township, Sandusky County, D. M. Mollgara and others' No. 2 J. A Recker, Section 21, pumped 5 bbls. In York Township, Van Wert County, the Pure Oil Co.'s No. 1 Evan Thomas, Section 13, pumped 15 bbls. In Harris Township, Ottawa County, the Zorn-Hornung Co.'s No. 1 Jacob Yeastings, Section 17, pumped 6 bbls., and Sherman and others' No. 2 H. Neiman, Section 8, pumped 15 bbls.

Central Ohio

There is a little excitement in Miflin Township, Ashland County, in the Central Ohio Field, over a showing of oil in the Berea sand in a test being made by J. H. Harmon and Sweeney. The well has a showing of from 3 to 5 bbls. and may be the forerunner of the opening of a new field for shallow development. The well is located about 8 miles east of Mansfield and the Berea sand was encountered at a shallow depth of 465 feet. The same parties, Mansfield people, will start No. 2 at once and put No. 1 on the pump as soon as a pumping outfit and tankage can be put on the ground.

In Litchfield Township, Medina County, Glass and others drilled a dry hole in a second test on the Fannie Stahl, Lot 43. In Harrison Township, Knox County, Winland and others' No. 11 John McKee, Section 23, shows for 5 bbls., as does A. J. Weideman and others' No. 12 on the Julia McKee, same section.

West Kentucky—Tennessee

By VERN T. WHITNEY

Fifty-one completions, of which 34 were producing wells, was the record of the West Kentucky Field. Hillman Refining Co. reported to have offered a 20-cent premium over Somerset crude for 100 bbls. of crude daily. No large producers, but a considerable number of good wells, and an important extension, characterized the week in the field.

BOWLING GREEN, KY.
May 27.

While conditions in the Western Kentucky Field during the past week have been normal, with 51 completions reported. 34 of which made producers, there were no very large wells, with the exception of a 150-bbl. producer on the Johnson farm, completed by the Big Bend Oil Co., and a 200-bbl. shallow well on the General Seibert farm, in Warren County, and two 100-bbl. completions in the No Name Pool (Or New Dyson) in South Allen County.

Of great interest to the producers, is the report that the Hilman Refining Co., whose plant at Bowling Green was recently put into operation, has made an offer to operators of the Davenport and Runner districts to pay 20 cents premium over Somerset for 100 bbls. of crude daily, which amount will likely be increased when the plant is running full capacity.

It is also reported that C. B. Shaffer, the well-known Oklahoma operator, is to take a substantial interest in this new refinery and also may take over the properties of the old American Pipe Line & Refining Co., which to date has been one of the jokes of the Warren and Allen County fields. It would be of great benefit to the field should this pipe line get into good hands and operate steadily, as there are a very large number of good wells in close proximity to this line which will go into the producing class the moment there is an opportunity to run oil.

In the vicinity of Hardcastle where the American Company has a line, development work has been seriously retarded. In this district of Eastern Warren County the Atlantic Oil Production Co. and the New Domain Oil Co., both subsidiaries of the Standard Oil Co., have together over 10,000 bbls. of oil in storage tanks. A deal is now in progress between the producers in this immediate district and the Paragon Development Co., which may mean the laying of a 10-mile line from the loading rack of the Paragon to this Hardcastle district.

Warren County Development

The most important completion in Warren County for the week in review was the completion of the No. 1 Sebe Smith by E. M. Treat & Co. This well was completed at a depth of 1,227 feet, 2 feet in the Red Rock. Top of shale was 1,039 feet and the bottom at 1,115 feet, top of sand was 1,210 and bottom 1,225 feet. After shooting, this well showed for a 60-bbl. producer. This Smith well is of great importance to the operators, as it is 1,100 feet northeast of the Bass No. 4, and connects the Runner Pool proper with the new northeast extension area, proving a large number of locations.

In the new shallow pool, east of Rockfield in south Warren, Hogan's No. 4 well on the Jenkins lease was completed at a depth of 460 feet, with 46 feet of pay good for 50 bbls. This shows two producing horizons on this same lease, as wells Nos. 1 and 2 were completed at around 290 feet. These two wells on a test the first of the week put 116 bbls. of oil into tanks in 24 hours. In the No. 3 well on the Jenkins, Hogan got a duster in the deep sand, at a total depth of 881 feet. Top of shale was 732 and bottom 798 feet. This well was drilled into the red rock 3 feet, which geologists state is the line of demarcation between the Devonian and Silurian systems.

The Ohio Oil Co., of Findlay, Ohio, which recently purchased a large amount of acreage in the vicinity of the above wells, missed both the freak sand at 290 feet and the shallow sand at 460 feet in its No. 1 on the Sid Williams lease, adjoining the Hogan wells on the north and is drilling on down to the deeper formations. On the Chaney lease well No. 3 of Newman and associates is reported dry at 280 feet. This well will without a doubt be carried on down deeper in a short time as soon as more capital can be raised. O'Connor Bros., drilling their No. 4 on the north end of the Chaney, also missed both shallow pays and are shut down awaiting orders.

The wells now drilling in this Chaney-Jenkins district are as follows: Ohio Oil Co. is down 490 feet in No. 1 Sid Williams and spudding in No. 1 Jenkins; Roy Hogan spudding No. 5 Jenkins; Wellington Petroleum Co.'s No. 1 on the Freeman lease, spudding.

In the Davenport Pool, on the Gen. Seibert farm, on which so many sensational wells were drilled in 1920, No. 11 of the Aragonne Oil Co. came in making 200 bbls. daily at 406 feet with 10 feet of pay. This company now has nine producing wells on this lease, two of which are in the deep sand, below the shale, making 25 bbls. daily.

The Big Bend Petroleum Co. scored another success in the completion of No. 14 Johnson, making 150 bbls. at 932 feet, 80 feet below the shale. This company is running over 250 bbls. daily from 11 wells to the Riggs refinery. No. 12 is still drilling and is expected in the first of the week, while No. 13, which was a shallow well, is being tubed.

On the R. L. Morris lease being operated by the Big Jack Oil & Development Co., of Cincinnati, Ohio, No. 26 was completed, making 25 bbls. at 1,087 feet. This R. L. Morris lease and the Johnson lease of the Big Bend Petroleum Co. are considered the two best leases in Warren County.

Other Warren County completions include three dusters and wells ranging from 5 to 50 bbls. On the J. Briggs No. 6 well of the Bertram Dev. Co. has been abandoned on account of lack of funds.

Allen County Activity

During the past week the completion of most interest in Allen County was the bringing in of a well estimated to be good for 20 bbls. on the Cook farm about 4,000 feet north and east of the well-known Satterfield Pool. Since the opening of this Satterfield Pool practically all drilling has been done west of the Bowling Green and Scottsville Pike, but it is believed that this Cook well will direct the attention of operators toward this eastern extension which is heading toward the famous old Sledge Pool. This Cook well was completed at a total depth of 490 feet, with 16 feet of pay in the first sand, then a 20-foot break, and 23 feet of second pay in which the production was found. The Cornwall lease, lying between the Satterfield and Cook farms, was purchased during the week by Illinois parties who intend to start active development at once.

There were five other completions in this Satterfield Pool during the week good for from 15 to 25 bbls., at depths ranging from 435 to 497 feet.

The sensation of the week in Allen County was the completion of two good wells in the No-Name Pool, 4 miles southwest of Scottsville. Keyes and associates brought in their No. 4 Mitchell flowing and pumping at the rate of 100 bbls. daily at 289 feet, immediately below the shale. The No. 3 well on this Mitchell farm is still producing 100 bbls. daily, according to pipe line reports after being in for three weeks. On the Barbee lease being operated by T. B. Banner and others, No. 4 well came in making 100 bbls. at 282 feet. On the Dyson farm recently purchased by Johnson and Sandusky a 15-bbl. producer was obtained at 291 feet.

Gordon B. Whiteside, of Duluth, Minn., in his initial well on the V. A. Pruitt farm, in the Sledge-Willoughby district in western Allen County, got a 50-bbl. producer at 464 feet, 40 feet below the shale. Whiteside purchased this property some time ago, including eight wells which were making a large amount of sulphur water and with the drilling in of this latest well has found that this water trouble can be handled as the casing was not set right in the other wells. It is his intention to at once run 4⅞-inch casing with a packer which will no doubt increase his daily production to a large extent.

Other Allen County completions range from 5 to 50 bbls. and show five dry holes.

Very little of importance is noted in any of the other counties of western Kentucky. In Barren County three producers and two dry holes are reported, while in Simpson County two dusters, one abandoned location and two 5-bbl. wells were reported.

Tennessee News

Reports from Dayton, Tenn., state that a 5-bbl. producer was brought in 4 miles north of Dayton in Rhea County on the Thomas farm after a 40-quart shot. The total depth of this well was 1,189 feet with 17 feet of sand, which was reported to be the Irvine sand.

Late West Kentucky Wells

In Warren County: Rockfield district, Roy Hogan's No. 3 Jenkins, dry at 881 feet; his No. 4 Jenkins, 50 bbls. at 460 feet; Dr. Kramer's No. 7 Bud Taylor, 25 bbls. at 501 feet; Newman Oil Co.'s No. 3 Chaney, dry at 280 feet; P. E. Dixon's No. 1 Tabor, 10 bbls. at 487 feet; John Scott's No. 1 B. Hollman, 10 bbls. at 400 feet; E. A. Sheridan's No. 3 Singleton, dry at 490 feet; Hunt Oil Co.'s No. 2 Butterworth, 5 bbls. at 460 feet. Waller-Runner district: E. M. Treat & Co.'s No. 1 S. Smith, 60 bbls. at 1,227 feet; Endicott Oil Co.'s No. 2 Gardner, 5 bbls. at 1,121 feet. Davenport district: Big Jack Oil Co.'s No. 26 R. L. Morris, 25 bbls. at 1,087 feet; Dr. Crump's No. 1 Roades, 15

Solid wedge disc double seated

FIG. 648 FIG. 892 FIG. 1354

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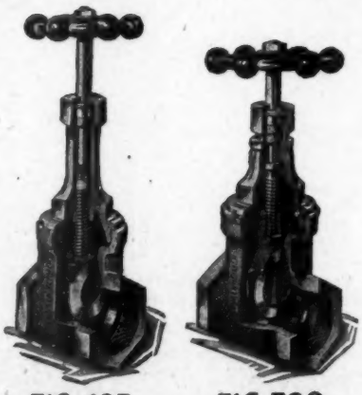

FIG. 427 FIG. 768

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bbls. at 400 feet; his No. 2 Rhoades, 50 bbls. at 400 feet; Aragonne Oil Co.'s No. 11 Seibert, 200 bbls. at 406 feet; Bertram Development Co.'s No. 6 J. Briggs, abandoned; Horner Petroleum Co.'s No. 2 Riglewood, dry; Sheridan Crude Oil Co.'s No. 1 Young, dry in the deep; Big Bend Petroleum Co.'s No. 14 Johnson, 150 bbls. at 932 feet; Davenport Oil Co.'s No. 8 Johnson, 10 bbls. at 860 feet.

In Allen County: Unknown parties' No. 2 Richards, 5 bbls. at 250 feet; Plantation Co.'s No. 3 Stovall, dry at 378 feet; E. E. Diest's No. 3 J. W. Starks 5 acres, dry at 300 feet; Smith & Watterson's No. 1 B. Willoughby, 15 bbls. at 435 feet; Thompson Oil & Gas Co.'s No. 2 B. Willoughby, 15 bbls. at 440 feet; their No. 3, same lease, 25 bbls. at 450 feet; Dunlap and others' Nos. 3 and 4, good for 20 bbls. each at around 480 feet; White Plains Oil & Gas Co.'s No. 1 R. R. Williams, dry at 533 feet; G. D. Whitesides' No. 9 Pruitt, 50 bbls. at 464 feet; J. S. Lewis and others' No. 1 E. B. Morehead, 10 bbls. at 258 feet; Seaboard Oil Co.'s No. 10 Dalton, 15 bbls. at 268 feet; Smith & Corbett's No. 1 Cook, 20 bbls. at 490 feet; Keyes and others' No. 4 Mitchell, 100 bbls. at 289 feet; T. B. Branner and others' No. 4 Barbee, 100 bbls. at 282 feet; Johnson & Sandusky's No. 1 Dyson, 15 bbls. at 291 feet; Kerr and others' No. 2 J. Stovall, 50 bbls. at 360 feet; their No. 3 J. Stovall, 20 bbls. at 356 feet; Ray & Sons' No. 3 M. Whitney, 5 bbls. at 264 feet; Fidelity Oil Co.'s No. 1 L. Hinton, dry; Fidelity Oil Co. also got a duster in the Keen Pool.

Simpson County; Lovett and others' No. 7 Pierson, 5 bbls. Born and others' No. 5 Steger, 5 bbls.; Johnson & Co.'s No. 5 Holland, dry at 560 feet; Beckley Oil & Gas Co.'s No. 3 Bland, dry at 525 feet; their No. 1 Lockhardt, dry at 530 feet; C. A. Phelps and others abandoned location No. 3 on Walters farm.

In Barren County: Hurd & Co.'s No. 1 Strader home farm, dry; Elem Oil & Gas Co.'s No. 6 Ad Myers, 10 bbls. at 350 feet; H. St. Clair's No. 6 Childress, 10 bbls. at 354 feet; L. Emery, Jr., and Sons' No. 24 Button, 20 bbls. at 364 feet; Carter Oil Co.'s No. 3 Hearston, dry at 235 feet.

Tennessee Completions

Unknown parties' No. 1 Thomas, 5 bbls. at 1,189 feet in Rhea County, 4 miles north of Dayton.

Pennsylvania-West Virginia

By D. S. WAKENIGHT

The old Allegheny Field in Western Pennsylvania presents a 100-barrel well on the Mallisee farm in the 100-foot sand indicating a small new pool. A 75-barrel Clinton sand well in Perry Township, Licking County. Southeastern Ohio-West Virginia Field reported little of interest. No revival of field work in sight.

PITTSBURGH, Pa.
May 29.

Development work in the Eastern fields during the past week proved a little better than the preceding week, but it was only by a small margin. With but two exceptions all completions came in light pumpers, gassers or dry holes. Operations are again declining in the West Virginia fields, due to the restrictions placed by the pipe line company on the amount it will take of the producers' oil. Producers have no storage tanks in the fields, except the South Penn Oil Co., and will not be able to take care of their oil if an effort is made to increase production. At the present time there is no prolific producing territory under development, so that the curtailment of runs will not work any great hardship. Producers are so determined that they will at some future time get a higher price for their credit balances and continue to hold on to their production. There has never been a time in the past when oil producers were in a better financial condition to hold out for a higher market. Instead of being forced to sell to continue development work, they are playing a waiting game and starting very little new work. They are giving more attention to keeping the old wells producing to their full limit than trying for new production. Shooting and cleaning out the old wells is the practice in nearly all fields.

Good Producer in Local Field

What looks to be the best producer drilled in during the week is the T. W. Phillips Gas & Oil Co.'s No. 4, on the T. E. Mallisee farm, located in the Unity district, Plum Township, Allegheny County. The first 20 hours after it was drilled into the 100-foot sand it flowed 100 bbls. The second 24 hours they swabbed 110 bbls. and the flow of salt water was diminished. The indications are favorable for a little pool in that vicinity and holders of leases are losing no time in starting new work. There are four wells drilling and two rigs up on farms adjacent to the Mallisee farm. Like most of the 100-foot territory, a large flow of salt water is found in all of the wells.

Southeastern Ohio Gets Good Well

The deep sand territory in southeastern Ohio furnished one fair producer. It is the Arkansas Fuel Oil Co.'s No. 4 on the H. W. Conger farm, located in the northeast quarter of Section 12, Perry Township, Licking County. The well is estimated to be good for 75 bbls. a day in the Clinton sand, and is the best this company has completed in the deep territory. All other deep sand completions came in light pumpers or dry holes. The only noticeable activity in any section of the producing area in southeastern Ohio is in the shallow sand districts in Knox and Holmes County. In these two developments the wells are small, not averaging more than 5 bbls. at the time of completion. The oil is developed in the Berea grit and the cost to drill and complete a well is comparatively small.

In Wells and Cross Creek Townships, Jefferson County, the recently dicovered extension to the Berea grit pool near Alexandria is calling out some new work, despite the fact that the last three completions, located in advance of production, came in dusters. In Wheeling Township, Belmont County, James H. Saint and Fred Andres have secured a block of leases, 2,500 acres in all, and are drilling a wildcat on the Watson farm. Jefferson County has been noted for its number of congested pools.

The result of development work in the West Virginia fields was so poor as to call for very brief mention. At no time during the week was there a 25-bbl. producer completed. Operators are marking time and starting very little new work. They are more concerned about having their production taken care of than to drill for more. In Kanawha and Boone Counties there is a little new work starting, but the close of the month will show less new work than at the close of April. In the Maxon sand pool in DeKalb district, Gilmer County, there has been a revival of development work, located for the most part inside of defined limits. Now Milton district, Doddridge County, is furnishing completions with a better average size than any other district in the State. There is very little new work under way or starting.

At the close of the week of development work, light wells were the best any district had to offer. On Five Mile Fork, Sheridan district, Calhoun County, the test of Hays, Roberts & Co. on the W. R. Busch farm is through the salt and not good for more than 5 bbls. a day. In the Brookside addition to Mannington, Marion County, the Spring Run Oil Co.'s test on the C. A. Snodderly farm is through all sands and is a light gasser in the fifth sand.

In Grant district, Pleasants County, the Sun Oil Co. has a duster in the Cow Run sand at No. 3 on the Epsie Motherel farm. On Mud Lick Run, Big Sandy district, Kanawha County, the Peerless Carbon Black Co. drilled its No. 6 on the Osborne Bros.' farm through the Weir sand, getting a very light gasser in that formation. In Lincoln district, Marion County, the Hope Natural Gas Co.'s test on the Snodderly heirs' farm is dry in all sands. In Mannington district, the Fairmont & Metz Oil Co. is testing for oil in the 50-foot sand at a test on the Ash heirs' farm.

Gasser in Wetzel County

In Center district, Wetzel County, the Johns Oil Co. has a Big Injun sand gasser at a test on the H. Antill farm. In Eagle district, Harrison County, the Valley Bell Oil Co. is cleaning out and will drill deeper its test on the Elisha Atha farm. In Troy district, Gilmer County, McGlothlin & Co. have a duster in the Gantz sand at a test on the Laban C. Busch farm. It has been abandoned.

Southeastern Ohio

At the close of the week, southeastern Ohio made no better showing than West Virginia. In Section 23, Harrison Township, Knox County, C. B. Winland & Co. completed a 5-bbl. pumper at No. 4 on the George W. Miller farm. In Cross Creek Township, Jefferson County, the Southern Oil Co.'s No. 4 on the D. O. Carpenter farm is showing for a very light pumper. In Section 28, Enoch Township, Noble County, the J. C. Dinsmoore etsate has a duster at No. 5 on the A. C. Weisent farm. In Section 15, Brush Creek Township, Muskingum County, W. R. Crowley & Co. have a 5-barrel pumper in the Berea grit at a test on the Charles Anderson farm.

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No. 23

California Field Operations

By C. H. GILMAN

Signal Hill district has a production of 28,075 bbls. a day from 28 wells. The Shell Co.'s No. 1 Dobyn starts off at 3,155 bbls. It is a town-lot proposition. Operators in California are worrying over the rapidly increasing stocks of crude and a cut in the price is feared. Natural gasoline industry reviewed.

LONG BEACH, Cal.
May 27.

The week's report of production of the Signal Hill district at Long Beach for May 20 shows a daily production of 28,075 bbls. This is one of the most remarkable averages ever made for any district south of the Tehachipi Mountains in the history of oil in California. There are 36 wells completed, of which number eight were either sanded, cleaning out or idle, leaving 28 wells with a daily average of 1,003 bbls. to the well. The Shell Co. has eight on the active producing list with a daily average of 11,562 bbls., one idle and two redrilling. These wells show a remarkable productivity and are standing up well. Their latest completion, Dobyn No. 1, was brought in on the 18th with an initial production of 3,155 bbls. With the exception of four wells all wells in the field are located in Section 29-4-12, the exception being one in Section 20, one in Section 19 and two in Section 30-4-12.

It is the opinion of oil men that the field will prove the greatest in point of production of any in the State, especially as regards the limits or area of the proven field. There are now 75 drilling wells and many new rigs are up and others in course of erection.

The two largest wells completed are the No. 1 Signal by the General Petroleum Co. with a daily average of 3,194 bbls. and the No. 1 Dobyn by the Shell Co., enumerated above. The active producers now in commission are given as follows, with their respective amounts of daily production: Bush & Voorhis (Hess), 948 bbls.; Co-Operative Oil Corporation (Graham), 45 bbls.; Crest Oil Co. (Babcock), 66 bbls.; Dabney Oil Syndicate No. 6, 1,741 bbls.; J. J. Doyle, 238 bbls.; General Petroleum Corporation (Signal), 3,194 bbls.; George F. Getty (Herwick), sanded and cleaning out. This well came in at 600 bbls. Henderson Petroleum Syndicate (Ella), 1,926 bbls., No. 1 Lekas, 700 bbls., No. 1 Rogers, cleaning, No. 1 Warren, 178 bbls.; A. T. Jergins (White Commity), 180 bbls.; Leonard Oil Co. (Jones), 350 bbls.; Marine Oil Producing Co. (Michaelson), 320 bbls.; Petroleum Midway Co., Ellis No. 1, 563 bbls., McDavid No. 1, 2,891 bbls.; W. R. Ramsey (City lease), No. 1, 194 bbls.; Sandberg Petroleum Co. (Crew No. 1), 117 bbls.; San Martinez Oil Co. (Booth No. 1), sanded and cleaning. This well was completed several weeks ago, coming in at 1,000 bbls. a day, later sanded and water broke in. Signal Hill Syndicate (Brown No. 1), sanded; Temescal Oil Co. (Benewell No. 1), 958 bbls.; United Oil Co., Denni No. 1, 151 bbls., Denni No. 2, 1,250 bbls., Hevener-Jones No. 1, 509 bbls.; Walker-Western Oil Co. (Andrews No. 1), cleaning out.

The layout of the field, being composed of city lots, establishes a unique feature in designating the name and number of each well, which is given in accordance with the name of the former owner of the property. Many of these leases will only stand for the drilling of one well, but in most instances royalty interests are pooled among the respective lot owners, thereby obviating the possibility of wells becoming too congested, and hence the danger which marked the early development of Huntington Beach by closely spacing of wells, has been practically avoided in the development of this field.

The Shell Co. is represented on the following leases. Alimetos No. 1, the discovery well, is redrilling; Dobyn No. 1 is producing 3,150 bbls. a day, Foster No. 1, 1,117 bbls.; Goddard, 1,910 bbls.; Horsch, 1,430 bbls.; Jones Community, 435 bbls.; Polly, 1,477 bbls.; Patton-Wilson, 518 bbls.; Peckler, 1,523 bbls.; Wilbur is shut down and Church No. 1 is sanded and redrilling.

CRUDE STOCKS PILING UP

LOS ANGELES, May 22.—The great and growing tendency in the increasing of oil stocks in California has caused no small concern among oil operators, who are beginning to sense a radical cut in prices if matters continue to get worse. The field reports of the Producers Agency show since the beginning of the year an accumulation of 5,246,915 bbls.

This is the direct result of extensive developments throughout the southern fields, particularly at Huntington Beach and Signal Hill, the latter field having now assumed the importance of adding 20,000 bbls. a day to be reckoned with in future reports. And it may possibly exceed this amount by 10,000 bbls.

Santa Fe Springs showed a daily yield of 6,500 bbls. during the month and this amount is expected to double within the next 30 days. The April report shows four active producers, two of which are producing most of the oil. There were 55 wells drilling. Big results are now in anticipation as many of these are expected in at any moment. On Saturday the General Petroleum Co. reported their No. 3 Santa Fe well in and producing 3,000 bbls. a day. Their No. 1, which was reported with an initial production of 4,500 bbls., is still holding up near 4,000 bbls.

It was stated on Saturday on good authority that some of the large companies anticipate shutting in many of their wells, but whether this will affect the situation remains to be seen. At this time the greatest cause for alarm lies with the general outcome of the Signal Hill and Santa Fe Springs districts.

Natural Gas Gasoline

In the earlier developments of casinghead or natural gas gasoline manufacture in California this line of industry was not generally given serious consideration by oil producers. The recovery of gasoline from natural gas was looked upon from the same viewpoint and discredited with the same vehemence that was accorded new fangled methods which were eternally springing up from time to time as possible "substitutes" acclaimed by sensational newspapers, encouraged by automobile dealers as revolutionizing its manufacture and cheapening the product to such a degree as to virtually put out of commission all previous methods of its manufacture so far as the refinery method was concerned, leaving the refiner with a surplus and no market for its disposal.

Up to the present time, however, gasoline continues to hold its own in turning the wheels of industry so far as motive power is concerned and casinghead gas has proved a most important factor in building up the present stocks, the large number of plants being responsible for many thousands of gallons per day of high gravity, affording an equal amount and even more of lighter distillates, which by mixture reduces the viscosity to any desired market demand.

In more recent years the method of building large compressor plants has been almost entirely abolished so far as California is concerned, as the more simple method of absorption and refrigeration has proved more economical, and while there is a possibility that compressor plants may and do secure a higher gravity of gasoline and a larger quantity, there is a serious question whether the added cost of construction will justify the expense of installing compressor machinery.

The richest gas for natural gasoline found in this state is at Santa Maria, and the oil produced in this field comes from shale. No oil sand is found. The oil as a rule is of high gravity. Some of the gas yields as high as 3½ gallons to the 1,000 cubic feet. There has been no additions to the number of plants installed during the past seven years. All of the plants are on the compressor order, and all with the exception of two immense Snow engines by the Union Oil Co. are of Ingersoll-Rand and Bessemer construction. The Purity company plant on the Western Union property, which passed to the Union Oil of Delaware some three years ago, was later "made over" into an absorption plant and what is known as the "Armstrong method" installed. These people claimed that they increased the former output from 1,600 gallons a day to twice that amount. A large number of new wells were added and additional gas obtained, which may have been responsible for the increase, but from the best authority obtainable there is every probability that this plant, like many others, has shown a reduction. Whatever merit the Armstrong process may have, there is little evidence of its installation in any of the other fields.

In the Midway Field no additional plants have been built during the past three years, the latest erected being two by the La Habra Gasoline Co., who have a large plant near Brea. These are built on the Combination order and produce about 2,000 gallons per day.

"Booster" plants, used for forcing natural gas from the fields to the gas lines, recover no inconsiderable amount of gasoline. The Standard has a number of these in the different fields. No account is made of the amount recovered, as this is turned direct into the crude oil and is brought out through natural refining methods.

At Montebello the Petroleum Midway Co. has an absorption plant which is handling 1,000,000 feet of gas per day. This is said to yield about one gallon to the 1,000 cubic feet. The Standard has its usual "booster" plant. At Richfield the Wonder Oil Co. has a small plant handling 750,000 cubic feet of gas daily. The Standard has four units; Selby, Root & Hogue have a small plant and Wade, Todd & Evans are handling 14,000,000 feet of gas through a refrigeration process. It is claimed they get about one-half gallon of gasoline to the 1,000 feet.

At Huntington Beach the Standard is running four units and the Petroleum Midway is handling 2,000,000 feet which shows a content of 1,000 feet of gas for one gallon of gasoline.

The General Petroleum Co. is operating a small absorption plant in Brea Canyon; the St. Helens Petroleum Co. is turning out about 250 gallons at a small plant in the La Habra Field and the Petroleum Co. continues to make from 150 to 200 gallons on the Gilman lease near Brea. At Whittier the Central Oil Co. is operating a small plant, making from 400 to 450 gallons per day, and the two absorption plants operated by the National Products Co. on the Hole and G. & L. Union leases at Brea are each holding up at 1,000 gallons per day.

APRIL FIELD REPORT

LOS ANGELES, Cal., May 19—With an estimated daily production of 18,800 bbls. 49 well completions were reported during April. Of this amount 4,450 bbls. are accredited to the San Joaquin Valley, while the remainder comes from Los Angeles and Orange Counties, the largest showing being at Long Beach where approximately 6,500 bbls. are reported from nine new wells, the largest of these being the General Petroleum Co.'s Signal No. 1, which started at 3,000 bbls. a day. Ten new wells at Huntington Beach show 2,675 bbls. The largest producer for the month was the General Petroleum well at Santa Fe Springs, with an initial output of 4,500 bbls. a day.

Four completions at Elk Hills show 1,800 bbls. a day, of which amount the Pacific Oil Co. claims 1,450 bbls. and the Pan-American Petroleum Co. 350 bbls., each having two wells.

The Midway Field continues to hold out good inducements, the daily output from 10 new wells amounting to 1,735 bbls. and five wells at Maricopa had a daily production of 600 bbls.

Aside from the districts enumerated there was "little doing" either at Fullerton, Montebello, Bera Canyon or Whittier-Coyote Hills. These fields, which played so prominent a part in building up a large supply during the past three years, have settled down to a normal production with a tendency to decline rather than increasing the yield.

An important completion is noted in the old played out district of the Puente Hills. This is the well started by the Eddystone Oil Co., a subsidiary of the now defunct Union of Delaware, which passed into the control of the Shell Oil Co. and was completed at 2,500 feet and is now producing 200 bbls. a day. The location is among a number of old shallow wells drilled by the Puente Oil Co. dating back more than 30 years ago, and may presage more extensive developments, although some geologists contend that the well is a "freak" as a number of deeper tests were previously made to a much greater depth and without favorable results.

The following list comprises the different wells completed, their location, number, depth and initial production being given:

Kern River Field

S. T. R.	Co. and No. Well—	Dpth.	Bbls.
18-28-28	Calaposa Oil Co., 1	1,200	25
11-28-27	Union Oil Co., 2	1,640	50
11-28-27	Union Oil Co., 3	1,685	100
	Wells, 3; new production		175

Coalinga Field

1-20-15	Pacific Oil Co., 1	4,063	75
22-19-15	Shell Co., 9	1,450	10
	Wells, 2; new production		85

Maricopa Field

32-12-23	Pac. Midway Oil Co., 11	1,800	300
34-12-24	C. J. Berry, 10	1,020	200
1-11-24	Security Oil Co., 5	1,225	25
22-11-24	Big Chief Oil Co., 5	820	50
5-11-23	Pacific Oil Co., 61	2,660	25
	Wells, 6; new production		600

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Midway Field			
8-32-24	Honolulu Cons., 89	2,910	350
12-32-23	Marvale Oil Co., 11	3,050	300
26-31-23	Associated Oil Co., 51	3,049	25
25-31-22	Santa Fe Co., 9	2,135	10
32-31-24	Boston Pac. Oil Co., 8-B	3,222	250
1-32-23	Pacific Oil Co., 29	2,700	150
27-31-23	Pacific Oil Co., 20	3,320	100
35-31-23	Pacific Oil Co., 4	3,280	200
31-31-24	Pacific Oil Co., 13	2,648	250
21-31-24	Pacific Oil Co., 29	3,000	100
	Wells, 10; new production		1,735
	Elk Hills Field		
6-31-25	Pan-Amer. Pet. Co., 8	3,415	150
1-31-25	Pan-Amer. Pet. Co., 1	3,228	200
35-30-24	Pacific Oil Co., 14	2,730	1,000
35-30-24	Pacific Oil Co., 11	2,795	450
	Wells, 4; new production		1,800
	McKittrick Field		
6-30-22	Jantha Prod. Co., 1	1,344	50
	Whittier (Puente) Field		
35- 2-10	Shell Co., A-1	2,493	200
	Salt Lake Field		
21- 1-14	Amalgamated Oil Co., 1-2	3,305	75
	Santa Fe Springs		
5- 3-11	Gen. Pet. (Santa Fe), 1-3	3,794	4,500
	Richfield Field		
33- 3- 9	George H. Wents, 1	3,498	250
33- 3- 9	Santa Fe Co., 2	3,457	200
	Wells, 2; new production		450
	Huntington-Newport		
2- 6-11	Amalgamated (M. & K.), 12	2,869	200
	J. W. Jameson (Linoleum), 1	3,678	175
2- 6-11	Mallis-Aldahl Co., 1	2,769	600
2- 6-11	M. H. Mosier, 2 (Porter)	3,567	200
2- 6-11	Pet. Midway, 1	3,746	50
11- 6-11	Rhoades Oil Co., 6	2,360	100
2- 6-11	Texas Holding Co., 2	3,680	150
2- 6-11	W. S. Oil Co., 1	3,814	500
2- 6-11	Wellington Oil Co.	2,665	400
2- 6-11	Standard Oil Co., B-6	2,665	300
	Wells, 10; new production		2,675
	Long Beach Field		
29- 4-12	Shell Co. (Foster), 1	3,187	1,000
29- 4-12	Shell Co. (Goddard), 1	2,650	200
29- 4-12	Marine Oil Co. (Pelham), 1	3,170	350
29- 4-12	Crest Oil Co. (Babcock), 1	3,007	200
29- 4-12	Signal Hill Oil Co., 1	3,580	200
29- 4-12	Signal Hill Midway, 1	3,118	225
29- 4-12	Geo. F. Getty (Herwick), 1	3,049	750
19- 4-12	Gen. Pet. Co. (Signal), 1-3	3,059	3,000
29- 4-12	Leonard Oil Co., 1	2,990	500
	Wells, 9; new production		6,425
	Total number wells, 49.		
	Total new production, 18,770 bbls.		

Agency Field Report

The Independent Oil Producers Agency field report for April shows a total production of 10,186,081 bbls., an average of 339,536 bbls. per day, establishing a new high state record of 544 bbls. per day greater than the former record of 338,992 bbls. recorded for April, 1921, and exceeds last month's production by 8,873 bbls. per day.

Shipments amounting to 8,144,625 bbls., show a decrease from March of 13,458 bbls. per day.

Stocks were increased 2,041,456 bbls., bringing the total surplus accumulated during 1922 to 5,246,915 bbls. The total daily surplus for the month is 68,049 bbls. and for the year is 43,724 bbls.

Field work continues active, although fewer rigs were built but more drilling wells are noted. Well completions were also less.

Following is the detailed statement:

NO. OF WELLS AND OUTPUT

District—	Active Prod.	Daily Prod.	Monthly Prod.
Kern River	2,208	20,695	620,855
McKittrick	299	6,811	204,342
Midway-Sunset	2,475	85,511	2,565,321
Elk Hills	149	37,404	1,122,132
Lost Hills-Belridge	489	8,480	254,406
Coalinga	1,267	34,336	1,030,076
Santa Maria	435	13,663	409,894
Ventura-Newhall	562	7,496	224,872
Los Angeles-Salt Lake	674	3,800	114,008
Whittier	1,129	1,969	59,070
Fullerton		15,238	457,156
Coyote Hills		19,994	599,811
Montebello		20,970	629,101
Richfield		26,033	780,981
Huntington-Newport	90	21,501	645,024
Long Beach	35	8,720	261,602
Santa Fe Springs	4	6,765	202,950
Summerland	142	150	4,500
Total	9,951	339,536	10,186,081
March	9,871	330,663	10,250,547
Difference	80	8,873	64,466

FIELD DEVELOPMENTS

District—	Rigs	Dig.	Comp.	Abd.
Kern River	1	4	2	1
McKittrick	2	11	1	3
Midway-Sunset	16	74	12	3
Elk Hills	4	11	0	0
Lost Hills-Belridge	0	11	0	0
Coalinga	3	30	1	3
Santa Maria	2	2	0	1
Ventura-Newhall	1	43	0	0
Los Angeles-Salt Lake	1	3	1	0
Whittier-Fullerton	5	54	2	2
Santa Fe Springs	3	55	1	0
Huntington-Newport	16	106	3	0
Long Beach	23	68	7	1
Miscellaneous drilling	4	64	0	5
Total	86	599	35	18
March	99	567	62	18
Difference	13	32	24	..

SHIPMENTS AND STOCKS

	Bbls.
Stocks on hand April 1, 1922	34,761,736
April production	10,186,081
Total	44,947,817
April shipments	8,144,625
Stocks on hand May 1, 1922	36,803,192
Stock increase during April	2,041,456
Stocks on hand January 1, 1922	31,556,277
Total 1922 surplus	5,246,915
Daily average, 1922	43,724

Wyoming Field Operations

By F. B. TAYLOR

Great activity being shown in Salt Creek Field while Sinclair interests start work on Teapot Dome. Record number of completions being reported now with 14,000 bbls. daily new production from Salt Creek. Pipe line record made last week with daily average of 54,000 bbls. Important question now is how to handle the present increase in production and that expected from Teapot Dome.

CASPER, Wyo.
May 26.

This month will see more completions in the Salt Creek Field than any previous month in the field's history unless the last days show a heavy slump. To date there are upwards of 30 wells completed with a combined new production of around 14,000 bbls. Just what is going to become of this new production is becoming an absorbing question for the field now has a potential production of better than 100,000 bbls, probably even greater than 130,000 bbls. per day and with the warm weather now prevailing, the production has increased to large proportions. The field storage is filling up fast and though tankage is going out, it cannot keep up with the amount of crude coming out of the ground.

The pipe lines are working at their utmost now. A new record was hung up last week when the average for the runs for the seven days was nearly 54,000 bbls. per day. Considering the heavy grades on the Salt Creek lines, the large wax content thereby making a high viscosity, and the matter of pumping in a light atmosphere, about a mile above sea level, it would seem that the men in charge of the pumping stations of the Midwest are to be credited with great proficiency in their work to be able to shoot about 54,000 bbls. of oil through the lines into the Casper tank farm in 24 hours. During a conference about two years ago, it was stated positively that the pipe lines from Salt Creek to Casper would not stand up if more than a maximum of 47,500 bbls. were put through the pipes in 24 hours, and that were such pressures kept up for any length of time the line would go to pieces under the terrific strains. This has been proven a fallacy and the lines are now carrying over 6,000 bbls. more than what was considered the ultimate safety point and still the lines are giving good service with no breaks of any consequence being reported.

Salt Creek's Potentiality

The more Salt Creek is developed, the greater the field becomes. Four years ago it was ranked a little larger than Big Muddy in the oil operator's opinion, in general. Very few saw the great possibilities at that time and leases and holdings were very low in price comparatively. Now as the drilling of wells around the outer part of the area shows more and more the great extent, the general public is wakening to the fact that Salt Creek is today the greatest oil field in the world. It is still doubtful if the field will ever reach the tremendous total that Cushing flowed in the palmy days of the opening of that great Mid-Continent Pool, but there is little doubt in the minds of many that were Salt Creek drilled up like Cushing, and the wells placed within close range of each other, Salt Creek could probably reach Cushing's grand total also. As it is, the wise provisions and regulations of the Bureau of Mines regarding the drilling of offset wells and the matter of cementing and other conservation measures, have certainly insured a long life to the Salt Creek Field which could easily have been gutted in a few years had not the Government stepped in and regulated the work.

Now that the Teapot is definitely thrown open to development, it is certain to make a total potential production close to 200,000 bbls. per day from the Salt Creek and Teapot Fields by the end of this year, and immediately the question comes up as to what is to be done with all this oil. Teapot is expected to show much larger production per well than Salt Creek from the wells in what is termed the south end of the Salt Creek Field, but which are believed to be located on the northern end of the Teapot structure. As an instance the Fensland well on Section 20-39-78 is nominally reported as a Salt Creek Field well, but it is considered geologically as located upon the Teapot side of the structure and this well is now able to make over 2,000 bbls. per day actual measurement. The Mosher well on the adjoining Section 19-39-78 is both nominally and geologically considered as located upon the Salt Creek side of the structure yet the Mosher well is only good for about 150 or 200 bbls. per day. On the School Section 16-39-78, the Glenrock and Royalty & Producers southernmost two wells are both considered as being located geologically on the Teapot, but are always referred to as Salt Creek wells. These two holes are capable of making over 1,000 bbls. each, while the wells just north on the same tract are only nominal producers averaging 100 or 150 bbls., some as high as 200 bbls. On the west of the School Section, the Marine Oil Co.'s well on Section 17-39-78 is a 2,000-bbl. producer, while directly north of same, the Carter Oil Co.'s well on the SE cor. NW, Section 17-39-78, is only good for a small production. According to all theories, the Carter well should be the larger producer because it lies nearer the center of the Salt Creek Field, but the theories in this case do not take account of the Teapot structure as being secluded entirely from the Salt Creek Field.

No Water Saddle

It is further difficult to see where the basis of the theory of a water saddle between Teapot and Salt Creek come from. According to careful surveys of the neck between Saddle Rock and the Shannon escarpment, there is no synclinal valley between the two fields such as would have to be there if a water saddle divides the Teapot Field from the main Salt Creek Pool. All measurements show an anticlinal axis extending without a break from the Teapot Dome into the main Salt Creek Field. On the east side, the dips average about 10 degrees while on the west, the dip is more inclined and will average about 12 or 14 degrees. However, this point should be settled definitely as soon as the Sinclair wells across the north end of the dome are drilled.

Summer has come in Wyoming and the Salt Creek Field is a scene of great activity. New camps are springing up like the prairie flowers all over the map. At the south entrance of the field, as one tops the escarpment, the Inland is building a fine home camp that will be among the best in the field. Just over the butte to the east the Western States has four buildings nearly under roof of a good-sized camp. Still further east the Fensland has about completed a fine camp about a quarter mile from the big gusher on Section 20. Over on Section 17 is one of the finest camps in the field, that of the Carter Oil Co. Bart Myers is the Carter's field superintendent. Beyond the Carter, is the Glenrock and Royalty & Producers home camp, where Superintendent George Ferguson regins supreme.

The aspect of the Glenrock tract has changed considerably. Everything is neat and orderly, and even the children have been looked after. The Glenrock has built a school, and the county school board has employed a competent teacher, so the children over on that side of the field are able to obtain an education, even though they do live out in what is commonly called a desert. The school room is equipped with the regulation desks and seats and all the paraphernalia necessary for the youngsters' needs.

Teapot Dome Activity Starts

On the SE quarter of Section 17-39-78, the Marine Oil Co. has one big producer in the Marine's No. 1 and a rig up for No. 2, which is located to offset the Carter well, and also the Glenrock and Royalty & Producers on Section 16. Two other wells have been located, one as an offset to the Fensland gusher and the other as an extension location on the east side. The Marine is moving in material and equipment for an active campaign the coming summer.

South of the above sections lies the Teapot Dome proper and here the Sinclair interests are busy moving in rig material and camp equipment. Will H. Weaver, of the Weaver Rig Building Co., has secured the contract for the first 20 rigs that the Sinclair people will put up, and Mr. Weaver is now sending in the rig stuff for same.

Salt Creek has a newspaper. It makes its appearance once a week, and is a cheery sheet with a title "The Salt Creek Gusher." It has taken for its slogan: "It's a privilege to live in Salt Creek." The Salt Creek Field deserves

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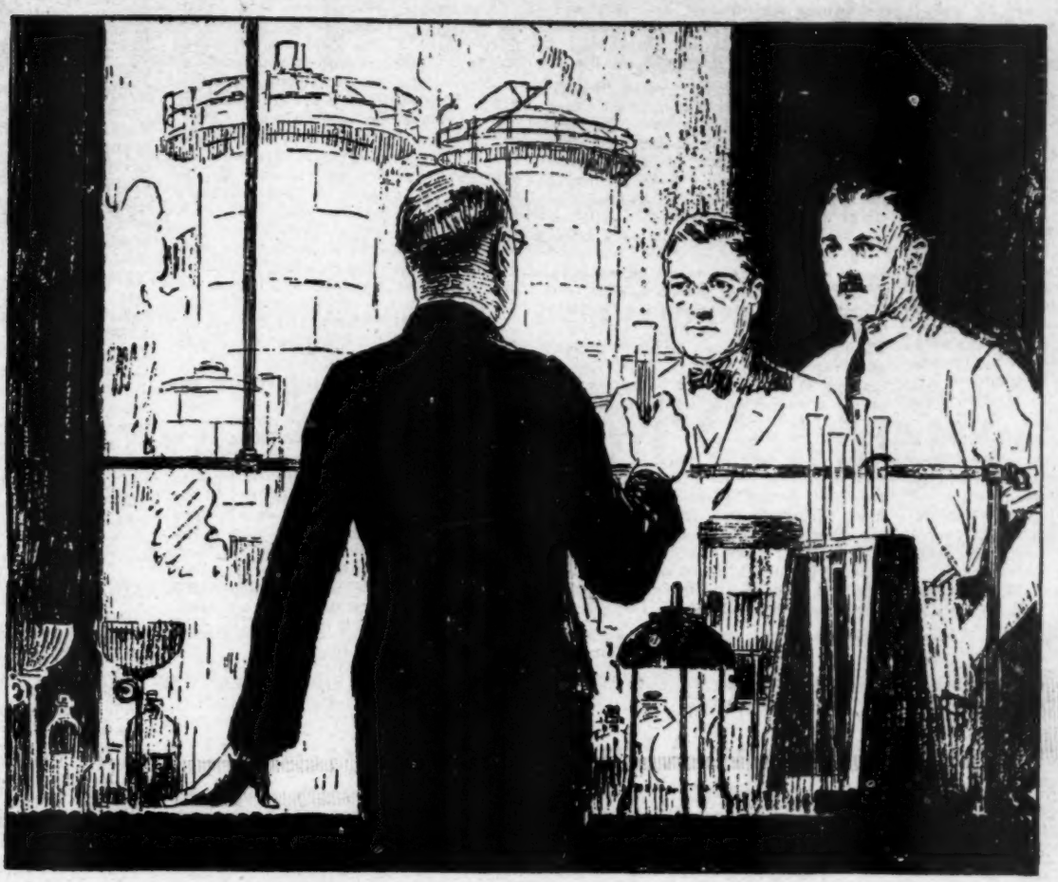

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A test was made this week of the Fensland Oil Co. well on the NW quarter of Section 20-39-78, in the southern part of Salt Creek Field, and the well made better than 2,700 bbls. in the first 24 hours. A three-day test will be carried out to determine the exact amount of production. Four new wells were reported from the Salt Creek district within the last 24 hours—the total production of which will run over 2,000 bbls. Two of these are located on holdings of the Mountain & Gulf Oil Co., and two on Wyoming Associated acreage. All are within the proven limits of the field. The Five Tribes Petroleum Co. test on the NE quarter of Section 19-40-78 has reached the top of the first Wall Creek sand at 2,339 feet, attaining this depth in a little over a month's time, part of which was spent straightening hole. The second Wall Creek, where production is expected, lies about 300 feet under the first, according to the geologist's estimates. This well has attracted considerable attention on account of its location outside of the proven area.

The Salt Creek Consolidated Oil Co. has acquired an additional 425 acres of proven land in the Salt Creek Field in return for 100,000 shares of stock of $10 par value. The Salt Creek Consolidated now holds an interest in 3,200 acres in the Salt Creek Field, and owns a net interest in 2,300 acres.

The Kinney Coastal Oil Co. has spudded in on its first well on Section 9-39-78, offsetting the Mosher well on the same section.

The Ohio Oil Co.'s deep test in the Grass Creek Field is showing for a 200-bbl. well in the Embar sand. Water was encountered at a depth of 3,670 feet and the hole will be plugged back to 3,629 feet, where the oil flow was uncovered. While not as large as first reports indicated, the well is to be considered a paying proposition at that depth.

The Bachellor Oil Co.'s test on Section 21-45-63, south of production in the Osage district, is ready to spud in. The Weston Niobara Oil Co. is moving a rig onto a location on Section 13 in the same township. This well will be farther to the southwest than any yet drilled in the Osage district, and will mean a substantial extension of the field if oil is found.

In the Lance Creek Field, the Buck Creek Oil & Gas Co. is getting ready to drill a new test on Section 3-35-65, and is putting up a rig on Section 27-36-65. The Buck Creek Co.'s No. 2 on Section 26, which found water in the deep sand and was plugged back to 3,632 feet, is making 25 bbls. per day. Another well on the same section is drilling out cement at 3,700 feet and should see completion soon.

The Bair Oil Co. struck a good gas flow in its No. 35 on Section 11-26-90 in the Lost Soldier Field, considered sufficient to furnish fuel for camp use. In the Ferris Field, the Producers & Refiners' No. 7 on Section 23-26-87 is making 6,000,000 feet of gas and drilling has been suspended. The same company's new gasser on the Mahoney Dome is considered good for 30,000,000 or 40,000,000 feet.

The test well on the Carlsen ranch adjoining the southeast limit of the city of Casper is within 50 feet of the Wall Creek sand and completion is expected within a day or two.

It is reported from Kevin, Mont., that the litigation which has tied up operations in the Kevin Field has been settled by a compromise between the parties concerned and the dismissal of seven suits. Five other suits are still pending, but the completion of the Gordon Campbell well will not be delayed any further. If the test comes up to expectations, great activity may be expected as the outcome. A number of local firms are raising money for test wells, and it is reported that several branches of the Standard have had their men in that locality awaiting the results of the litigation. Gordon Campbell, who drilled the discovery well and who has large holdings in the Sweetgrass Arch, has formed the Gordon Campbell Royalties Co., with $500,000 capitalization.

The Absaroka Oil Development Co. found a dry hole on the Ingomar Dome in Rosebud County and is pulling casing. The same company is down 260 feet in a test on McGinnis Creek and is fishing. The test on Norquist holdings in Section 34-15-30 in Antelope Creek district in the Cat Creek Field is straightening a crooked hole and will resume drilling again at 165 feet. No further report has been received from the Grantz Corporation's deep test which found a showing of oil in the third sand in the Cat Creek Field.

News of Mexican Oil Fields

By GEORGE BLARDONE

Completion in San Miguel in South Fields rated at 500 bbls. adds to interest in that section. La Corona Petroleum Co.'s completion in Chiconcillo rated at 12,000 bbls. However, another well of same company nearby was invaded by salt water at same time, causing several companies to abandon drilling. Interest at Panuco centering on Cacalilao.

TAMPICO, Mexico.
May 23.

San Miguel, in the South fields, continues to occupy the center of interest in Mexican pools, for Mexican Fuel Co.'s No. 4, Lot 1-A, has come in now rated, it is true, at only 500 bbls., but it is oil. The surface depth in this well is 2,565 feet, with an elevation above sea-level of 315 feet, which makes it 2,250 feet sub-sea level. In other words, it is deeper, sea levels considered, than is Mexican-Sinclair Petroleum Corporation's well No. 3, Lot 1, B fraction, which is located some distance north and a little east of it.

Mexican-Sinclair's well broke loose early last week, but it was shut in again in a few days. It showed to be quite a well while it was on the go and will, no doubt, prove up around what it was rated for—15,000 to 20,000 bbls.—when exploitation commences.

Further south, in Chiconcillo, La Corona Petroleum Co.'s No. 2, Lot 2, Chiconcillo, has been finished at 2,258 feet, sub-sea level of 2,136 feet, rated at 12,000 bbls. As it came in, however, the company's No. 1 there, which came in last February at a sub-sea level depth of 2,150 feet, was invaded by salt water, which put a damper not only on the new well, but caused La Corona to abandon its No. 4 there at 2,018 feet, where it was drilling. Two or three other locations were immediately abandoned as a result, although Black & Graham, drilling north and east, on the Morrison fraction, are continuing to make hole.

The past few days at Panuco have not been very successful, either. One small producer and three failures constitute the results obtained. They were: La Corona Petroleum Co.'s No. 33 Potrero del Ojital, good for 300 bbls. at 2,115 feet. Mexican-Sinclair Petrolem Corporation's No. 2 Arteaga, Lot 97, Halcon, is a dry hole at 2,580 feet. Norman Mexican Petroleum Co.'s No. 1 Rivera, in the Tampuche sector, finished in salt water at 2,290 feet. Vera Cruz Mexican Oil Syndicate has a failure in its No. 1, Lot 15, Lomas y Llanos.

At Topila, Mexican Fuel Co.'s (Pierce) No. 11 Santa Fe is a duster at 2,600 feet.

South Fields

Drilling operations in the South fields can be epitomized as follows: Huasteca Petroleum Co.'s (Mexican Petroleum) has cemented the 8-inch casing in its No. 4 Tierra Blanca, in the limestone at 2,142 feet. In its No. 25 Cerro Azul it is redrilling at a nominal depth, and its No. 26 there has cemented 10-inch in brown shale at 1,600 feet. In Chapopote Nunez, its No. 1 is drilling in brown shale at 1,475 feet, and its No. 3 is in a sandy limestone at 2,100 feet; its No. 2, same, is drilling in shale at 2,025 feet. Up at Juan Casiano, in No. 9, Lot 161, it has cemented 10-inch at 1,672 feet in a shell.

Mexican Eagle Oil Co., which has been working on a test that will possibly be a deep one, No. 24 Los Naranjos, Lot 132, Amatlan, struck some fluid at 1,968 feet in a brown limetsone, and it is standing for orders. There is not a great deal of water in the fluid and it may be cased off and the drill sent down as per the original schedule. Its No. 6, Lot 1, San Geronimo, which is just north of the San Miguel line, is drilling in blue shale at 660 feet. To drop south a little, Mexican Eagle's No. 1 Chiconcillo is showing 50 bbls. in a white limestone at 2,385 feet. The hole is giving a little trouble, however, and no progress has been made in a week. In Alazan, the company's No. 18 is drilling in gray shale at 2,060 feet, and its No. 21 is rigging. In Cerro Veijo, its No. 4 is cleaning hole in the packed sand at 1,535 feet, and its No. 5 is in gray shale at 2,355 feet, which is getting deep, and No. 8 has cemented 10-inch casing at 1,755 feet in a brown shale. Over in Tlacolula, its No. 5 is in a gray shale at 1,974 feet, running 12½-inch, and its No. 6 is fishing for parted 8-inch at 2,955 feet in shale. In Palma Sola, south of the Tuxpam River and west of Furbero, No. 1 is fishing an undereamer lug at 2,085 feet in a hard sandy limestone; No. 2 is drilling in green shale at 1,605 feet; No. 3 is fishing for parted 10-inch at 1,745 feet; No. 4 is drilling at 1,155 feet in gray shale. Up at San Diego, No. 6 has cemented 10-inch at 1,760 feet. Penn-Mex Fuel Co. continues to have trouble with its hole at No. 1 Palo Blanco, where it is underreaming at 825 feet. At Alamo, its No. 12 is drilling in blue shale at 2,840 feet; its No. 1 Jardin is drilling in a similar formation at 2,050 feet, and up in the Molino, its No. 3 is drilling in blue shale at 2,370 feet.

Agwi Companies are back in Lot 176 Amatlan drilling at 800 feet in shale. Black & Graham's No. 2 Chiconcillo is around 1,565 feet on the Morrison. La Corona Petroleum Co.'s No. 1, Lot 6, Castillo de Teayo, which is a big hacienda well south of the Tuxpam River, in which considerable interest is due to be manifested, has commenced and the drill is now at a nominal depth. La Corona's No. 1 San Javier is drilling at 2,415 feet in hard shale. Cortez Oil Corporation, in the Aguada No. 2, is fishing at 3,010 feet in shale. Over in Idolo Island, just west of Port Lobos, East Coast Oil Co. is 3,720 feet in shale. International Petroleum Co.'s No. 1 Agua Nacida has shut down at 3,240 feet in blue shale, and its No. 3 is redrilling at 1,620 feet in a similar formation. In Toteco, No. 22, which is on the western edge of the hacienda (where the diamond core drill is being used), the hole was last reported at 1,766 feet in blue shale.

At Panuco

Interest at Panuco is centering on Cacalilao, and there are several locations being made here at this time. The interesting test there now is Transcontinental Petroleum Co.'s No. 1, Lot 4, which, at 2,170 feet, is making 500 bbls. by heads, with a caving hole which is giving some trouble. As before remarked, the test is deep compared to other pay completions in this sector. Transcontinental's No. 2, Lot 14, Tanchicuin, has started and is in the red shale at 130 feet. International Petroleum Co.'s No. 3, Lot 4, Cacalilao, is another test that is deep, the drill there being 2,385 feet in the limestone; its No. 4 in the same lot is 825 feet in the blue shale; its No. 5 same lot is at a nominal depth, and Nos. 6 and 7 are derricks. These tests cover the actual operations there extant at this time.

Lomas y Llanos has been pretty well discounted, as has Palangana, although a few tests continue to hope, which is an admirable thing, no doubt. In Palanga, Continental Mexican Petroleum Co.'s No. 5 has cemented 8-inch at 1,572 feet in a limestone. East Coast Oil Co.'s No. 4 Palangana is drilling in brown limestone at 2,105 feet, and its No. 6, Lot 1, which location is removed from the other wells, is rigging.

In general, the other operations in the several Panuco sectors follow: La Corona Petroleum Co. has cemented 8-inch at 1,405 feet in its No. 35, Lot 6 Tanchicuin, Credito Petroleum Co.'s (the German interests) No. 2, Lot 9 Isleta, has a hole drilled 2,362 feet which can slop less than 100 bbls. It is standing but may as well be completed now. Its No. 1, Lot 4 Lomas y Llanos, is drilling in shale at 2,198 feet. Cochrane and others' No. 1 Finca Hernandez, East Maguabes, is drilling at 625 feet in shale. Mexican-Sinclair Petroleum Corporation is rigging up for a test on the Chinton, west of Panuco proper. Mexican Gulf Oil Co.'s No. 3 Lopez is drilling in pink limestone at 1,550 feet, and its No. 3, Lot 21 Tanchicuin, is drilling in broken limestone at 1,305 feet. New England Fuel Oil Co.'s No. 2 Caballero, up in Salvasuchi, still has the 500-bbl. showing, but the drilling is getting along for that sector at 2,080 feet; its No. 3 Cruz has just began to make hole, and No. 4 is a rig. New York Maguabes Oil Co.'s No. 1, Lot 43 Miradores, is spudding. Payne and others' No. 1 Finca F. Silva (E. M.) is drilling in shale at 1,575 feet Panuco-Boston Oil Co.'s No. 9 Ugarte is in shale with its diamond drill at 925 feet. Tamante Panuco Petroleum Co.'s

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No. 1, Lot 13 Tamante, directly across the river from the "Devil's Elbow" bend, has cemented 8-inch at 1,530 feet in a shell. Thomey & Price's No. 1, Lot 12 Isleta, is drilling in shale at 1,400 feet.

At Topila, Mexican-Sinclair Petroleum Co.'s No. 1 Lomas del Pozo, some 12 miles southeast of the discovery well, has cemented 8-inch at 2,590 feet, and Globe Petroleum Co., south of them in the Quebrache (No. 1, Lot 174), is drilling in shale at 805 feet.

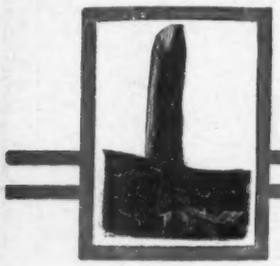
At Limon, south of Ebano, Cia. Pet. Franco Espanola's (Marland interests) No. 3 is drilling in hard blue shale at 1,730 feet, and its No. 4 is in gray shale at 420 feet.

At El Barco, Kern Mex Oil Fields' No. 2 has cemented 8-inch at 1,582 feet in limestone.

Supplementing diamond core drilling machines for distant wildcat work will be the plan of the Transcontinental Petroleum Co., and the Cortez Oil Corporation in the extensive Aguada tract, west of the old Tepetate Pool. With this end in view, standard tools will be used with internal combustion engine power. Three 120 horse-power Clark internal combustion engines have arrived here for that purpose. If necessary, holes will be drilled to 5,000 feet. Cortez Oil Corporation has one hole in Aguada drilled 3,010 feet with a rotary. Transcontinental Petroleum Co. is a subsidiary of the Standard Oil Co. of New Jersey, and the Cortez is a subsidiary of the Atlantic Refining Co. This action is in line with the casting about for a cheaper method of seeking out new pools distant from present supply bases, of which fuel is no small item in this country.

Penn Mex Fuel Co.'s main station at Tuxpam Bar, the mouth of the Tuxpam River, has been raided by bandits. While J. E. Dinger, general manager of the company, who recently returned from the United States, was in the camp the camp boss, Frank Flynn, was the man the bandits demanded, declaring they wanted to hold him for ransom. Not finding him, they helped themselves. An incident of the affair was the fight the armed Mexican camp guards engaged in with the bandits. All five of the guards were killed trying to protect the property.

Three men of the Monte Michaels band, all of them said to be renegade Americans, have been captured by Federal troops belonging to this district, and are now in prison here awaiting disposition by the authorities. This being in view of the attack on F. E. Watts, made by Michaels and his crowd on Mr. Watts at his home at Ebano (as previously reported), in which Watts killed Michaels in defending his home and person.



Late News from the Fields

Burbank district in Oklahoma had a lighter week than usual with a 1,300-bbl. well, after a shot, the best of the completed wells. Kansas shows a number of comparatively good new wells especially in Butler County. Interesting wildcat operations in Texas. Dry wildcats in Oklahoma. Other late field developments.

TULSA, Okla.
May 31.

In Osage County, Oklahoma, the U. S. Cities Corporation plugged No. 3, NW cor. NE NW SE, Section 9-22-12, at 2,028 feet. The Midland Oil Co. shut in 3,500,000 feet of gas from 1,844-60 feet in No. 5, NW cor. NE, Section 9-22-12. The Sheeders Oil Co. has completed a 30-bbl. well in No. 8, CWL E half W half SW, Section 33-23-12, sand 1,644-88 feet. The Osage Oil & Refining Co. has plugged No. 1, SE cor. NE, Section 25-22-10, at 2,400 feet. Hivick and others' No. 19, NE cor. SW NE NE, Section 8-23-11, is a 30-bbl. well after the shot from 1,647-70 feet.

The Marland Oil Co.'s No. 15, CNL NW, Section 26-24-9, has been completed and started at 50 bbls. after the shot in sand at 2,097-2,132 feet. Swanson and others' No. 2, NW cor. SE, Section 10-25-8, was flowing at the rate of 75 bbls. daily after the shot in sand 2,375-85 feet. H. V. Foster's No. 41, CEL W half E half NW, Section 25-25-9, is a 25-bbl. well from sand at 2,072-2,111 feet. It was shot with 280 quarts. The Oklahoma Central Oil Co.'s No. 8, CSL N half S half NW, Section 16-22-9, sand 2,159-79 feet, started at 50 bbls. after the shot. Durrill and others completed No. 2, SE cor. SW NW, Section 19-23-9, dry at 517 feet. The Douglas Oil Co. has a dry hole in No. 3, NW cor. SW NW, depth 600 feet.

The Burbank Field, Osage County, did not show a very strong line of completions this week when compared to its recent records. The daily average production of the pool for the week was 66,400 bbls., a falling off of about 2,000 bbls. from the week before. The completions in the pool for the week was as follows: The Carter Oil Co.'s No. 6, CNL NE NW SE, Section 8-26-6, sand 2,876-2,942 feet, started at 300 bbls. after the shot. The same company's No. 6, CSL SE SW SW, Section 9-26-6, 760 bbls. the first 15 hours after the shot in sand 2,843-2,910 feet. The Prairie Oil & Gas Co.'s No. 3, CWL NW SW SW, Section 10-26-6, started at 310 bbls. after the shot in sand 2,857-97 feet. The Midland Oil Co.'s No. 1, NW cor. Section 15-26-6, was shot with 120 quarts in sand 2,866-91 feet and made 670 bbls. the first 24 hours. The Tidal Osage Oil Co.'s No. 13, NE cor. NW NE SW, Section 30-27-6, is good for 720 bbls. daily to start with from sand at 2,918-55 feet. The Phillips Petroleum Co. and the Skelly Oil Co.'s No. 5, SW cor. NW, Section 30-27-6, flowed 750 bbls. the first 24 hours after the shot in the sand at 2,894-2,944 feet. The same owners' No. 6 on the lease, CWL NW SW NW, started at 400 bbls. from sand 2,895-2,970 feet. The Gypsy Oil Co.'s No. 12, CEL NE SE NE, Section 31-27-6, made 1,000 bbls. the first 24 hours after the shot in sand 2,896-2,953 feet. The Gypsy Oil Co.'s No. 10, C SW SE SW, Section 32-27-6, started at 1,300 bbls. after the shot in sand 2,860-2,921 feet. The same company's No. 12 on the lease, CNL NW NE SW, made 1,100 bbls. the first 24 hours after the shot in sand 2,895-2,951 feet. The Waite Phillips' No. 2, CWL NW SW SE, Section 33-27-6, started at 320 bbls. from sand 2,963-3,001 feet after a shot with 110 quarts. This is the farthest east well in the pool.

Other completions in Osage County were as follows: The Roxana Petroleum Co.'s No. 322, NE cor. SE NE, Section 3-28-10, has been completed as a 5-bbl. pumper from sand 1,821-41 feet. The Osage Development Co.'s No. 32, CWL NE, Section 35-29-11, started at 180 bbls. after the shot in sand at 864-904 feet. Foster & Davis' No. 15, CWL NW NE, Section 2-26-10, has been completed as a 2-bbl. well after the shot in sand 1,837-50 feet. The Yorkhoma Oil Co.'s No. 8, SW cor. NE NW, Section 20-26-11, is a 5-bbl. well after the shot in sand 1,570-84 feet. The Plymouth Petroleum Co.'s No. 14, CWL SW, Section 25-25-11, is a 40-bbl. well after the shot in sand 1,654-1,717 feet.

Stephens County

In the Duncan-Comanche districts, Stephens County, the Magnolia Petroleum Co. completed No. 1 Wilson, SW cor. SE. Section 17-2s-7w, as a 4,000,000-foot gasser from 1,010 feet. Caldwell and others' No. 2, Lot 9, Section 20-2s-7w, was completed dry at 1,867 feet.

Colony and others' No. 1 Leonard, NE cor. SE, Section 6-1s-8w, was finished dry at 2,454 feet. Hamon and others have put No. 20 Glass, NE cor. SE SE, Section 33-1s-8w, on the pump and it was making 30 bbls. from 2,185-88 feet. The Poor Boys Oil Co.'s No. 1 Church Lot, CWL NW NW, Section 3-2s-8w, has been put on the pump and is making 125 bbls. daily from 2,217-2,222 feet.

Caddo County

In the Cement Field, Caddo County, the Cole-Lafayette's No. 4 Ginrich, SW cor. NE NW, Section 6-5n-9w, is completed as a 15-bbl. producer from sand topped at 2,385 feet. The same company's No. 5, SE cor. NE NW NW, Section 6-5n-9w, is making 40 bbls. on the pump from 1,610-21 feet. The Sypre Oil Co. has completed No. 1 Deitrich, SE cor. SW NW SE, Section 23-7n-10, dry at 2,935 feet.

Three abandonments were completed in Custer County. Guiler & Ossenbeck's No. 1 Boyd, SE cor. SW, Section 1-14-14w, has been abandoned at 300 feet. The Parker Oil Co.'s No. 1 Smith, SE cor. NW, NW, Section 1-15-15, has been finished dry at 3,005 feet. The National Union Oil Co.'s No. 1 Sparks, NE cor. SE SE NE, Section 29-13-16w, has been abandoned at 850 feet.

In Grady County, the Magnolia Petroleum Co.'s No. 1 Long, C SE NW SE, Section 33-5n-7w, has been completed dry at 3,176 feet.

In Roger Mills County, the Porter Syndicate's No. 2, SW cor. SE, Section 28-14-23w, has been abandoned dry at 2,172 feet.

KANSAS

In the fields of Kansas, Butler County, went far ahead of all other counties in the State in completions this week, 11 of them being in the vicinity of the Fox-Bush district. Several of them were comparatively large wells. The National Refining Co.'s No. 8 Molter, SW cor. NE, Section 26-28-5, started at 300 bbls. naturally from sand 2,784-2,805 feet. The White Eagle Oil & Refining Co. got a 200-bbl. natural producer in No. 7 Molter, NW cor. SE SE, Section 26-28-5, which is pumping and flowing from 2,778-95 feet. The Lewis Oil Co.'s No. 5 Bunnell, NE cor. SW, Section 26-28-5, was flowing naturally at the rate of 200 bbls. from 2,780-94 feet. The same company's No. 4 on the lease is a 150-bbl. natural producer from 2,779-2,804 feet. It is located in the SE cor. NW. Another big well was the S. & S. Oil Co.'s No. 6 Craig, which was shot in sand 2,756 to 2,813 feet, and started at the rate of 300 bbls. It is located in the NW cor. SE SE, Section 23-28-5. The same company's No. 4 Craig, NE cor. SE, Section 23-28-5, is a 100-bbl. well after the shot in sand 2,750-2,804 feet. A dry hole was finished by the Kansas & Gulf Oil Co., whose No. 5 Brown, NE cor. NW SE, Section 35-28-5, missed the sand and was abandoned at 2,829 feet.

The Lewis Oil Co.'s No. 8 Brown, CSL SE SE, Section 25-29-5, is a 50-bbl. well from sand 2,705-53 feet. Braden & Gore shot No. 1 Lentz, NW cor. SE NW NW, Section 1-29-5, in sand 2,799-2,824 feet with 20 quarts and it was making 150 bbls. on the pump. The National Refining Co.'s No. 3 Showler, C NE SW NE, Section 35-28-5, was making 40 bbls. on the pump after a shot in the sand at 2,744-87 feet.

The Liggett Oil Co. has a 100-bbl. producer in No. 12 Hughes, NE cor. SE SE, Section 9-26-8, sand 2,350-69 and 2,456-2,512 feet. It was shot with 140 quarts.

Greenwood County had only two completions this week. The Theta Oil Co.'s No. 3 Schneider, CSL SW SW, Section 10-23-13, was making 70 bbls. on the pump after the shot in sand 1,569-1,628 feet. The Mid-Kansas Oil Co.'s No. 4 Hoffman, NE cor. SW, Section 30-25-9, is a 60-bbl. pumper from 2,449-74 feet after a shot with 60 quarts.

Marion County, showed two completions, both good-sized producers. The Watchorn Oil Co.'s No. 20 Joliffe, CWL NW NW, Section 9-22-4, is a 150-bbl. natural well from 2,474-78 feet. The Kansas Gulf Oil Co. and the Connell Petroleum Co.'s No. 6 Greeley, CNL NE, Section 19-21-5, came in at 200 bbls. from sand 2,328-29 feet.

In Elk County, Blackstone & Mitchell completed a 20-bbl. well in No. 8 Hyde, SE cor. NW NE, Section 9-30-9e, after a shot in the sand at 2,345-62 feet.

There were four completions in Lyon County, two being dry and the other two fair wells. Seltzer & McDougall have a 75-bbl. well in No. 1 Gardner, SW cor. NE NE, Section 1-22-11, sand 1,862-66 feet. It is 45 gravity crude. The Minnehoma Oil Co.'s No. 1 Doty, SE cor NE NE, Section 31-21-12, was shot with 100 quarts in sand 1,918-39 feet and is good for 15 bbls. daily. Brinn and others abandoned No. 1 Hoopler, SW cor. NW, Section 2-21-12, at 2,415 feet. There was barren sand at 1,902-56 feet. Jeffers & Loy's No. 1 Weiderhold, NW cor. SE, Section 14-21-11, was abandoned dry at 2,250 feet.

In Marshall County, the Blue Vermillion Oil Co.'s No. 1 Harvey, a rank wildcat, located in the CSL SE, Section 29-2-9e, was abandoned at a total depth of 3,005 feet.

GULF COAST

In Jefferson County, the Houston Production Co. is setting 6-inch casing in No. 1 Pipkin at Big Hill at 3,200 feet. It is said the Texas Exploration Co. has renewed a part of its leases there, which is one of the known salt domes, with an elevation of 30 feet above the Gulf. In another part of the county, the Seaport Oil Co. is drilling No. 1 Emily at 3,950 feet.

In Harris County, leasers and scouts are still covering the section east of Green's Bayou, where some 2,000 acres have been leased within the past 20 days. At Hockley, the Gulf Production

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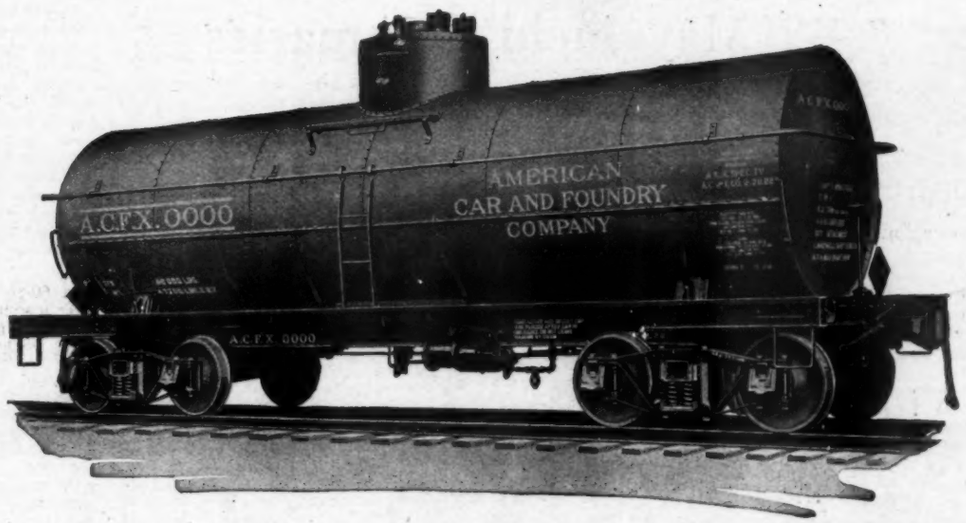

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Co. went into a cap rock formation showing some oil at 315 feet in No. 16 Warren, on the east side of the dome, another saline proposition. The showing has no special significance, as it has been found in previous tests. The Texas Exploration Co. on the west side, is drilling below 2,700 feet. Durfee and others' No. 2 Stewart, near Webster, is below 1,600 feet. The Garrett Oil Co. has set 10-inch casing at 2,200 feet in No. 2 Carpenter, near Penn City.

In Brazoria County, the Atlantic Oil Producing Co.'s No. 1 Strobel, near Chenago, is drilling at 1,450 feet. The Rancho Isabella Oil Co.'s No. 3 Rudger, north of Angleton, is below 3,670 feet. The Mustang Mound Oil Co.'s No. 2 Allison is idle. The Oliver Hall No. 1 Fee is below 760 feet. Molloy and others have a derrick for No. 1 Emmert, near Alvin. The Texas & Pacific Coal & Oil Co. has a derrick for No. 1 Barnes near the Bernard River, west of Damon. The test of the Transcontinental Oil Co. at Old Ocean is shut down.

In Matagorda County, the Economy Oil Co. is below 2,700 feet in No. 1 Taylor, 5 miles northeast from Palacios. The test near Cuero is fishing at 970 feet. The Loos Oil Co. has resumed drilling near Sublime in Lavaca County at 1,350 feet.

In Jackson County, the Jackson County Syndicate's No. 1 Durshell is below 2,600 feet. The Vanderbilt Oil Co.'s No. 3 Koop is around 1,250 feet, setting 10-inch casing. In Hidalgo County, the Lomita Oil Co.'s No. 2 Oblate Fathers land is drilling at 450 feet.

In Neuces County, Mitchell and others have abandoned No. 1 Roberts, 10 miles west of Corpus Christi, at 4,350 feet. The Gas Ridge Oil Co. has a deep test drilling in Bexar County at 3,396 feet.

Over in the east Texas counties, Simms & Co. are below 3,100 feet with No. 1 Thompson Lumber Co., west of the town of Trinity. The Godley Oil & Gas Co. is fishing in No. 1 in Polk County, and Wagner and others are shut down at 2,800 feet.

In Nacogdoches County, the Palmetto Petroleum Co. is rigging for No. 2 Lacy, near Sacul. Col L. B. Musgrove, of Jasper, Ala., a prominent coal operator, is the leading financial interest in the Palmetto Co., which is composed of a few individuals who are testing out their faith in the northwestern part of that county. In the old shallow sand field in the county, the Yababel Oil Co. has a small pumper 15 miles southeast of the town of Nacogdoches. The Laclede Oil Co. and the Caroline Oil & Refining Co. are both drilling shallow wells and Jennings and others are starting a test on the Ellison survey.

In Orange County, the Sandy Creek Oil Co. is below 3,400 feet in No. 1 Stanton, 2½ miles northeast of the pool. Tests are scheduled to start within the next 30 to 60 days in the northern part of the county from 6 to 10 miles from the pool.

In Walker County, the second test within the penitentiary walls at Huntsville, is below 340 feet. Currie and others are below 1,500 feet in No. 1 Ferguson. The Walker-Madison Oil Co. and South Texas Production Co. are both shut down.

In Houston County, the Porter Oil Co. will test No. 1 Austin, near Crockett, at 3,500 feet. The Mulligan test 8 miles west of Crockett is drilling around 1,500 feet.

Four tests are drilling in Anderson County by the McConnell and others' syndicate, the Michigan, Texas Oil Co., Winans and others and the Eldridge-Price Corporation, near Grapeland. The Elkhart Chamber of Commerce has a block of 5,000 acres which it is willing to assign to some person who will drill a test on it. Floods, poor cotton corps with low prices and other conditions have caused much depression in the small towns of east and central Texas, and the bankers and business men as well as the landowners are all hoping to find oil and thus revive business. Most any town will give a bonus of some kind for a test well but the clever schemer had better stay away. While these men are terribly in earnest they do not propose to be victimized. Their willingness to pay a bonus or assign large blocks of acreage for a test is born of the desperateness of the situation and they hope to benefit by creating a demand for leases and thus get some bonus money.

In Austin County, Fitzsimmons and others are below 3,200 feet in No. 1 Scherburg. The Fayette Oil Co. is below 3,100 feet in Fayette county. In Grimes County, the Navasota Oil Co. is below 4,250 feet with No. 1 Vickers. Derricks are up for Freeland and others' No. 1 Prestwood and No. 1 McDaniels. The Terry Development Co. is drilling No. 1 Upchurch.

The Berkshire Petroleum Co. is drilling two tests near Rio Grande City in Starr County. In Waller County, the Husley-Fletcher Co.'s No. 2 Baines is drilling around 3,000 feet.

South Louisiana

In Cameron Parish, the Yount-Lee Oil Co. is below 2,000 feet at Hackberry Island. In Acadia Parish, the Acadia Oil Co. is drilling No. 1 Lowell at 1,300 feet. The Crowley Syndicate is below 600 feet.

In Iberia Parish, Coller and others have rigged for No. 2 McIlhenney. Harrison and others are rigging No. 1 Fee in Jefferson Parish, and Weichart and others are below 675 feet with No. 1 Bishop.

OLD TIDIOUTE'S GOOD WELL

OIL CITY, Pa., May 26.—The well of C. E. Carnahan on the Siggins farm a couple of miles from Tidioute is proving to be one of the most sensational finds reported in the old oil fields of northwestern Pennsylvania in the past 10 years.

Although brought in about three weeks ago it is now producing at the rate of 80 bbls. a day. It is in territory which was capable of producing wells which generally started at 1 bbl. a day or less. Anything over that figure was considered a good well. At one time this Carnahan well was producing 140 bbls. a day. It has already within a period of three weeks produced enough oil to pay for itself about six times over.

May Field Summaries

RESULTS IN ALL FIELDS

Summary of Completed Work

Field—	Comp.	Prod.	Dry	Gas
Eastern	413	1,491	64	49
Central Ohio	60	126	11	22
Lima	37	585	1	0
Indiana	15	327	4	0
Kentucky-Tennessee	198	2,820	30	13
Illinois	38	276	15	0
Kansas	138	7,814	37	2
Oklahoma	484	121,346	126	30
North Central Texas	161	33,583	33	3
East Central Texas	83	44,035	24	0
Gulf Coast	138	41,020	53	4
Louisiana-Arkansas	173	43,820	13	4
Wyoming	47	15,620	2	0
Montana	2	0	2	0
Utah	0	0	0	0
Total, May	1,987	312,863	415	127
Total, April	1,941	386,396	429	119
Difference	46	73,533	14	8

Summary of New Operations

Field—	Rigs	Dig.	Ttl.
Eastern	237	360	597
Central Ohio	54	89	143
Lima	8	61	69
Indiana	0	30	30
Kentucky-Tennessee	16	351	367
Illinois	2	27	29
Kansas	84	212	296
Oklahoma	484	1,230	1,714
North Central Texas	137	523	660
East Central Texas	29	253	282
Gulf Coast	117	428	545
Louisiana-Arkansas	204	476	680
Wyoming	222	465	687
Montana	9	141	150
Utah	0	27	27
Total, May	1,603	4,673	6,276
Total, April	1,585	4,634	6,219
Difference	18	39	57

In all the fields east of California in the period covered by the May summary of operations 1,987 wells were completed, the initial daily production was 312,863 bbls.; the dry holes 415 and the gas wells 127. The report for the month of April showed 1,941 wells completed, 386,396 bbls. in new production, 429 dry holes and 119 gas wells. This shows a gain in completions of 46, but a falling off in new production of 73,533 bbls. Fourteen fewer dry holes and eight fewer gas wells.

The Mexia Field showed a falling off in new production of 41,120 bbls. in May; the Gulf Coast fields fell off 35,688 bbls., while Louisiana-Arkansas showed a slump of 25,928 bbls. in new production. The Oklahoma field showed a gain of 6,673 bbls. over April; Kansas a gain of 1,449 bbls.; North Central Texas a gain of 17,195 bbls.; Wyoming a gain of 5,798 bbls. Kentucky showed a falling off of 1,705 bbls; the Eastern fields a falling off of 149 bbls.; Illinois a falling off of 287 bbls.; Central Ohio a falling off of 44 bbls. Lima Field a gain of 436 bbls.; and Indiana a gain of 132 bbls.

There was a gain of 18 in rigs and 39 in wells drilling, a total gain of 57 in new operations in May. The rigs up at the close of the May report numbered 1,603 and the wells drilling 4,673, a total of 6,276, while at the close of the April report the rigs numbered 1,585 and wells drilling 4,364, a total of 6,219.

OKLAHOMA

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Washington	19	139	1	0
Nowata-Rogers	14	111	2	0
Osage	89	36,027	10	1
Tulsa	15	315	2	3
Okmulgee	61	7,588	23	8
Okfuskee	58	19,722	10	6
Muskogee-Wagoner	37	127	27	5
Creek	65	36,345	13	1
Pawnee	3	191	0	0
Payne	6	2,890	0	0
Kay	5	185	2	1
Garfield-Noble	17	10,970	2	2
Carter	34	4,155	2	1
Stephens-Cotton	35	896	11	2
Miscellaneous	26	1,685	11	1
Total, May	484	121,346	126	30
Total, April	469	114,673	112	13
Difference	15	6,673	14	17

Summary of New Operations

County—	Rigs	Dig.	Ttl.
Washington	2	27	29
Nowata-Rogers	1	15	16
Osage	127	223	350
Tulsa	8	10	18
Okmulgee	51	118	169
Okfuskee, McIntosh, Seminole and Hughes	36	112	148
Muskogee-Wagoner	5	33	38
Creek	115	188	303
Pawnee	21	36	57
Payne	7	36	43
Kay	1	11	12
Garfield-Noble	14	60	74
Carter	21	86	107
Stephens-Cotton	39	112	151
Miscellaneous	36	163	199
Total, May	484	1,230	1,714
Total, April	405	1,189	1,594
Difference	79	41	120

During May, Oklahoma fields showed 484 completions, new daily production was 121,346 bbls., 126 operations were dry, and 30 were gas wells. April showed 469 completions, 114,673 bbls. of new production, 112 dry holes and 13 gas wells. This shows an increase for May over April of 15 completions, 6,673 bbls. of new production, 14 dry holes and 17 more gas wells.

The most spectacular well, as well as the largest, was brought in during May, it being the Roland Oil Co.'s well in Section 2-15-8, Creek County, which flowed at an estimated rate of 20,000 bbls. daily before it was put under control and actually gauged 16,800 bbls. in a day. It is a Dutcher sand well and located a half mile south of the County Farm production, where the Wilcox Oil & Gas Co. brought in a well two months ago that started at 3,000 bbls.

During the month the Burbank Field in Osage County yielded the largest naturally flowing well that has ever been brought in in that pool, it being the Sinclair Oil & Gas Co.'s No. 7 in Section 29-27-6, which flowed at the rate of 2,350 bbls. daily before the shot. This field was also extended a half mile east by Waite Phillips, who brought in a 500-bbl. well in Section 33-27-6, it being the first well for that owner in the pool and the first operation to reach pay in that section.

The second and third producers in the new pool in Okfuskee County, south of Okemah, discovered by the Midwest & Gulf Oil Co., were brought in during the month. The Independent Oil & Gas Co. and Kemp completed a well in Section 12-10-9 that made as high as 1,200 bbls. daily, it being located two locations south and east of the original well, and the Turman Oil Co. and the Oklavania brought in a well offsetting the original well to the south that started at 45 bbls. hourly by heads. It is in Section 11-10-9.

The second well in the new pool in Pawnee County was brought in by the McMann Oil Co. in Section 36-20-8, it being a north offset to the original well brought in by Gillette and others. The new well found the sand lower than the discovery well and started at 500 bbls. daily.

The largest well completed in southern Oklahoma in a year was brought in by the Amerada Petroleum Co. in the Brock district, Carter County, Section 21-5s-1e, the well flowing at the rate of 1,000 bbls. daily.

The month saw a falling off of production in the Lyons Pool, Okfuskee County, which during April produced as much as 50,000 bbls. daily. The daily production of the pool has fallen to below 23,000 bbls. and the wells completed are much smaller and foretell the end of big flush production in the pool.

The Burbank Field went over the daily production figure of 65,000 bbls. during the month, it being the most the field has ever made. Whether this wonderful field has reached its peak daily production is not yet known.

The counties compared in new daily production for the two months as follows: Washington, May 139 bbls., April 214 bbls.; Nowata-Rogers, May 111 bbls., April 80 bbls.; Osage, May 36,027 bbls., April 44,867 bbls.; Tulsa, May 315 bbls., April 20 bbls.; Okmulgee, May, 7,588 bbls., April, 4,240 bbls.; Okfuskee, May, 19,722 bbls., April 35,480 bbls.; Muskogee-Wagoner, May 127 bbls., April 55 bbls.; Creek, May 36,345 bbls., April 17,025 bbls.; Pawnee, May 191 bbls., April 1,167 bbls.; Payne, May 2,890 bbls., April 2,300 bbls.; Kay, May 185 bbls., April 200 bbls.; Garfield-Noble, May 10,970 bbls., April 1,956 bbls.; Carter, May 4,155 bbls., April 3,487 bbls.; Stephens-Cotton, May 896 bbls., April 2,772 bbls.; Miscellaneous, May 1,685 bbls., April 810 bbls.

New work showed a large increase over the preceeding month. The reports show 484 rigs, 1,230 drilling wells with a total of 1,714 new operations for May, an increase of 79 in rigs and 41 in drilling wells, a total increase of 120 over April's showing.

KANSAS

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Butler	31	3,475	12	0
Marion	9	890	3	0
Greenwood-Woodson	42	2,056	7	1
Chautauqua-Elk	5	260	2	0
Montgomery-Wilson	4	40	1	0
Neosho-Allen	13	134	3	0
Miami-Franklin-Douglas	1	0	1	0
Miscellaneous	33	959	8	1
Total, May	138	7,814	37	2
Total, April	142	6,365	35	5
Difference	4	1,449	2	3

Summary of New Operations

County—	Rigs	Dig.	Ttl.
Butler	24	64	88
Marion	16	28	44
Chautauqua-Elk	7	15	22
Greenwood-Woodson	22	45	67
Montgomery-Wilson	0	5	5
Neosho-Allen	0	6	6
Miami-Franklin-Douglas	0	4	4
Miscellaneous	15	45	60
Total, May	84	212	296
Total, April	93	224	317
Difference	9	12	21

During May there were 138 wells completed in Kansas with an initial daily production of 7,814 bbls., 37 were dry and 2 were gas wells. In April the State

(Continue don Page 66)

Copper, the *Anti-Toxin for* Sheet Metal Rust!

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Pacific Coast Representatives: UNITED STATES STEEL PRODUCTS COMPANY, San Francisco, Los Angeles, Portland, Seattle.

Export Representatives: UNITED STATES STEEL PRODUCTS COMPANY, 30 Church St., New York City; 36-38 New Broad St., London, E. C.

Demand For Gasoline Continues Active

Offer of 19 cents for New Navy by Exporters Causes Several Refiners To Advance Asking Price-Stocks Scarce, Blends Hold Steady.

By Paul S. Hedrick

Summer weather has made its appearance throughout the country, after an unusually wet spring, and everyone connected with the refinery industry is satisfied.

The advent of hot weather assures the refiner, the marketer and jobber, that the demand for petroleum products, which has been steadily increasing, will continue without abatement and that new consumption records may be made this season.

This view is borne out somewhat by the latest report of the United States Bureau of Mines on refinery operations for the first quarter of 1922. The government's report shows that consumption is 25 per cent greater than for the first quarter of 1921.

Exporters Pay Premium

Exporters of gasoline are again in the refining centers seeking to buy all of the New Navy gasoline that can be gotten at their prices. The principal purchaser is the Union Petroleum Co., which on last Friday announced that it would pay 19 cents per gallon for New Navy specification gasoline in the States of Kansas, Oklahoma and North Texas. The same firm also announced that it would pay 21½ cents for 64-66 grade of gasoline, regardless of endpoint.

The action of this company was responsible for many Mid-Continent refiners advancing their asking price for 58-60 New Navy specification gasoline from 19 to 19½ cents early the present week. These manufacturers asserted that they saw no reason why the domestic quality of New Navy should not command the same price as that which the Union wanted, and which had to pass both the acid and doctor test, before it could be exported, while only the acid test is required for the domestic grade.

Other exporters are also still in the market for what supplies they can obtain, but the Philadelphia concern appears to have the edge on its competitors.

Rate Reduction to Be Felt

The Interstate Commerce Commissions' decision of May 24, ordering a reduction of freight rates from all sections of the country on July 1, is expected by many refiners to have a considerable influence on the refined oil situation during June, especially the latter weeks of the new month.

"The large oil jobbers of the country are as well informed on conditions as the major refiners," one sales manager said this week, "and early in May, when the market was starting to climb, they bought heavily and are now not so active in the market. The smaller jobbers are never able to buy ahead like their larger competitors.

"As a result many refiners are 'sold ahead,' for one, two, three or four weeks of June, and experiencing a little difficulty in making prompt shipments. This has had the tendency to develop at many refineries a semi-congested condition, that may temporarily halt the present upward movement of the market. While no indication is visible today of such taking place, yet one cannot tell what may take place in the next few weeks."

Gasoline Stocks Low

It appears to be unanimous that there is no unusual volume of gasoline stocks in the Mid-Continent, except possibly in the hands of a few companies, one of which is the Marland Refining Co. The Marland Company sold 1,000,000 gallons to the Union Petroleum Co. for export when S. R. Scivally, manager of the Oklahoma division of that concern, offered 19 cents for New Navy. This motor fuel was sent to Westwego, La., to be prepared for shipment abroad.

Three Tulsa sales managers who have been touring the States of Kansas, Oklahoma, Texas and Louisiana report that those centers are fairly cleaned up of gasoline, especially New Navy that can pass the export requirements. The higher gravities are being made by only a few plants now.

Outside of New Navy, every Mid-Continent refinery is now turning out great quantities of 56-58, 450 end point gasoline, to supply the trade which hesitates at New Navy prices. At that the price on 56-58, 450 end point, is not very far behind the New Navy article.

Motor Blends May Advance

With the representative refiners of the Mid-Continent inclined to "bull" the market on New Navy, a product normally scarce at this season of the year, and which may become scarcer, the future for motor natural gasoline blends as a substitute appears very bright. Motor natural gasoline blends were in little demand this week, but prices were steadied by the bearishness on New Navy. Oklahoma and North Texas prices appeared uniform 17¾ to 18½ cents.

Since the average mileage of Group 3 to the northern and eastern markets has been stretched by the principal carriers serving Oklahoma refineries, the Group 2 (Kansas) refiners are beginning to argue that they should have a different rate under Group 3. This is the same argument that refiners located within the old Group 3 put up when Group 3's boundary was moved southward and westward, except that they argued that the change would break down the North Texas refined oil rate. An instance is cited in the Missouri Pacific Railway's announcement that it had petitioned the Southwestern Lines for authority to make St. Louis its maximum rate making point for Missouri and its part of Illinois, which would lower the present freight rate from Burkburnett (Texas) from 53.5 cents per 100 pounds to 46.5 cents.

The Kansas Oil Refining Co. plant at Coffeyville, Kan., will shut down today (June 1) to undergo improvements.

The Western Oil Corporation, of Indianapolis, Ind., has established a North Texas division, with Cress Millican, formerly with the Lone Star Refinery, as manager, and headquarters at Fort Worth. In addition, the Western Company has taken over the Panther City refinery, near Burkburnett.

Margin Being Tightened

Reports from Chicago and other northern marketing centers say jobbers are complaining about the narrow margin that has developed between the wholesale refinery centers and the tank wagon price at their places of business. This is particularly noticeable at Chicago, where the tank wagon price is 22 cents on gasoline. With New Navy gasoline commanding 19 cents in Group 3, and the freight being 2.64 cents, the jobbers' net profits are but .36 of a cent.

Complete Wax Plant

The Transcontinental Oil Co. is completing its wax and compounding plant at the Fort Worth (Texas) refinery. When ready for operation, it will enable the Transcontinental to turn out a variety of grades of motor, tractor and general purpose lubricating oils and waxes from Ranger crude oil.

In addition, the Transcontinental early in June will establish a jobbing division with headquarters at Muskogee, Okla., with a warehouse and distributing station there. R. P. Hume, manager of western sales, advises that gasoline, kerosene and lubricating oils will be handled from the Muskogee division.

Santa Fe Seeks Mexican Fuel

While the Frisco Lines are going ahead with plants to convert a majority of its locomotives from coal to oil burning, since six of the leading Oklahoma refiners that belong to the Western Petroleum Refiners' Association have signified their willingness to furnish it with 100,000 bbls. of fuel oil a month, the Santa Fe system is seeking a large supply in the Mexican fields. A party of Santa Fe officials were in Mexico last week for the purpose of contracting for a large volume of Mexican fuel oil from topping plants. This fuel oil would be delivered to the Santa Fe at either Texas City, Galveston or Houston, Texas, where it has export terminals.

The Katy is already receiving considerable Mexican fuel oil, to augment what it buys from South Texas and Mid-Continent refiners.

Fuel oil prices are holding firm, with a tendency to advance. In Group 3, the minimum price is 95 cents, and the maximum ranges from $1 to $1.05 a barrel. In North Texas, 85 to 90 cents is the range. At Fort Worth, the White Eagle Refining Co. has just furnished the power plant there 30,000 bbls. at $1.15 a barrel.

Gas oil is somewhat weak throughout the several states, except in North Texas, where Tennessee public service companies are in the market for supplies.

Tank Wagon Structure

The Oklahoma tank wagon structure on gasoline is steady at 22 cents, advises L. E. Hutchens, secretary of the Oklahoma Oil Jobbers Association, while the kerosene tank wagon ranges from 8 to 11 cents.

"We still have a few places in the state where prices are effectively low, such as Perry with 8½ and 18; Kingfisher with 8½ and 20, but on the whole, the schedule is very uniform," says Mr. Hutchens, who adds that while the wholesale market fully justifies at least a 2-cent advance in the state tank wagon price on both commodities, yet there is no indication of such a move.

McDonald Has Resigned

J. S. McDonald has resigned his position as salesman for the D. F. Connolly Agency, Inc., in Arkansas, Louisiana and Southern Texas. The Connolly line of Farrar & Trefts boilers in Mr. McDonald's former territory are now being handled by the Oil City Iron Works, Shreveport, and the La-Tex Iron Works, El Dorado, Ark., and Haynesville, La.

COASTAL REFINED MARKET IS GENERALLY UNCHANGED

Houston, Texas, May 30.— Gas oil is fractionally higher, due to advances in the east and the higher trend of gasoline, but quotations on lubs are practically unchanged with a very slow demand as far as stock made from Gulf Coast crude is concerned.

Fuel oil is quoted from $1.15 to $1.20 and business is limited, as the North Texas refiners get under the Coastal figures.

The Petroleum Iron Works is erecting two 64,000-bbl. steel tanks for stocks at the plant of the Humble Oil & Refining Co. at Baytown and one 55,000-bbl. tank at Texas City for the Swiftsure Petroleum Co., a fuel oil marketing concern. The Texas Co. is building several 35,000-bbl. steel tanks at its Port Arthur refinery and the Gulf Refining Co. is building a grease and canning plant at its Port Arthur works and enlarging the length of its concrete wharfs.

The Humble Oil & Refining Co. has completed its dock on the Neches River, which is connected with the Orange Pool by pipe lines and is now moving Orange crude out of storage to the Baytown refinery in tankers. The Texas Co. has a line direct to its crude tank farm near Port Arthur and the Gulf Pipe Line Co. one to its tank farm below Spindletop. The Sun Co. is also handling crude from Orange to its tank farm at Spindletop.

The Atlantic Oil Producing Co. has a line to Orange and moves its crude in tankers to Texas City for shipment to Philadelphia.

The Humphrey-Pure Pipe Line Co. is testing the south end of its Mexia line to Port Neches, below Beaumont. High water in the Trinity River and tributary streams has prevented a previous test, but oil is being run from the Mexia Field to the stations north of the river and it is expected to be pumping through to Port Neches within the next 10 days.

The National Transit Pump & Machinery Co. secured the pump orders for the new Standard Oil Co. of Louisiana line from the Haynesville Field. N. A. Newton, sales manager, and W. H. Gaither, district manager, have returned to their homes in Oil City, Pa., and Houston. The order aggregates $200,000 worth of equipment. P.L.McG.

Okla. P.& R. Controls Okla. Central Oil Co.

What is perhaps the largest deal that has been consummated in the Tulsa territory during the present year was the taking over of control of the Oklahoma Central Oil Co. by the Oklahoma Producing & Refining Corporation of America. Completion of the transaction was announced yesterday by J. Arthur Hull, president of the Oklahoma Central, and T. O. Lillystrand, vice president of the Oklahoma Producing & Refining Corporation, who handled the negotiations for his organization. Mr. Lillystrand yesterday was elected to the board of the Oklahoma Central Co. and from this time on will probably take an increasingly important part in the affairs of the purchasing company.

The Oklahoma Central has authorized capital of $2,500,000 par value $1 a share, and it is understood that the Oklahoma Producing & Refining Corporation has obtained practically all of the outstanding stock. The price paid was not announced, but must have run well into the millions, as the Oklahoma Central has something like 5,500 bbls. of daily production. The properties consist of some 25 producing leases on which are approximately 140 wells, gasoline plants, and something like 8,000 acres of undeveloped properties.

Most of the production is high-grade oil in the Slick, Beggs, Lyons and Osage districts, all of the properties being in Oklahoma.

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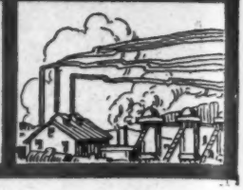
REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All American Oil Fields



GASOLINE AND NAPHTHA

CHICAGO DISTRICT (Based on Gr. 3)—	May 30	May 23	May 16
50-52 450 end point (Naphtha)	17¼ @17½	16½@17	16 @16½
56-58 450 end point	17¾ @18¼	17¾ @18¼	17½@18
58-60 437 end point (New Navy)	18¾ @19¼	18½@19	18¼@18¾
60-62 400 end point	20½@21	20½@21	20 @20½
64-66 375 end point	22 @23	22 @22½	21¼@21¾
68-70 360 end point	22 @23	22 @22½	21¼@21¾
OKLAHOMA (Group 3)—			
50-52 450 end point (Naphtha)	17 @17¼	17 @17¼	17 @17¼
56-58 450 end point	18 @18¼	17¾ @18	17¾ @18
56-58 437 end point (New Navy)	18¼ @18½	18 @18¼	18 @18¼
58-60 437 end point (New Navy)	18¾ @19	18½@18¾	18½@18¾
60-62 400 end point	20 @20½	20 @20½	19½@20
64-66 375 end point	21½@22	21¼@21¾	21 @21¼
68-70 350-365 end point	22½@23	22½@23	22½@23
NORTH TEXAS—			
48-52 450 end point	16 @16½	16 @16½	15½@16
50-52 440 end point (Naphtha)	16½@17	16½@17	16 @16½
56-58 450 end point	18 @18½	18 @18½	18 @18½
58-60 437 end point (New Navy)	18½@19	18½@19	18¼@18¾
60-62 560 end point	20 @20½	20 @20½	19½@20
64-66 390 end point	21½@22	21½@22	20½@21
NORTH LOUISIANA-SOUTH ARKANSAS—			
58-60 437 end point (New Navy)	19½	19½	18¼@18½
56-58 450 end point	18½	18½	..
64-66 400 end point	21½	21½	..
ROCKY MOUNTAIN STATES—			
58-60 437 end point (New Navy)	23¼	22¾	22
PENNSYLVANIA—			
52 Naphtha	19½	18¾	17¾
54 Naphtha	19¾	19	18
56 Gasoline	21	20	18½
58 Gasoline	22½	21½	21
60 Gasoline	23	22½	22
62 Gasoline	23½	23	23
64 Gasoline	25	25	23½
66 Gasoline	25¼	25¼	24
68-70 Gasoline	25½	25½	24½

NATURAL GASOLINE

CHICAGO DISTRICT (Based on Gr. 3)—	May 30	May 23	May 16
80-84 compression	22 @23	20½	19½@20
72-76 absorption	23 @24	21½	20½@21
OKLAHOMA (Group 3)—			
Grade A, 72-76, under 375 e.p., rec. 90%	22	20¾@21½	20¾@21½
Grade B, 76-80, 375 end point, rec. 88%	21¾	20¾@21½	20¾@21½
Grade C, 80-84, 375 end point, rec. 85%	21¾	20½@20¾	20½@20¾
Grade D, 80-84, 330 end point, rec. 80%	20¾@21¼	20½@20¾	20½@20¾
Grade E, 84-87, 330 end point	20¾@21¼	20½@20¾	20½@20¾
Grade F, 87-90, 330 end point	20½@20¾	20½@20¾	20½@20¾
NORTH TEXAS—			
80-84 compression	20 @20½	20 @20½	20½@21
84-90 compression	20½@21	20½@21	20½@21
72-76 absorption	21 @21½	21 @21½	20¾@21¼
NORTH LOUISIANA-SOUTH ARKANSAS—			
80-88 compression	20½@21	20½@21	20½@21

BURNING OILS

CHICAGO DISTRICT (Based on Gr. 3)—	May 30	May 23	May 16
41-43 water white Kerosene	4½@ 4¾	4¼@ 4½	4¼@ 4½
OKLAHOMA (Group 3)—			
41-43 water white Kerosene	4½@ 4¾	4¼@ 4½	4 @ 4½
42-43 water white Kerosene	4½@ 4¾	4¼@ 4½	3⅞@ 4¼
42-43 Kerosene Distillate	4¼@ 4½	4⅛@ 4⅜	3¾@ 4
44-46 Kerosene Distillate	6 @ 6¼	6 @ 6¼	5½@ 6
45-47 Kerosene Distillate (500 end point)	10½@11	10 @10½	9½@10
46-48 Kerosene Distillate (480 end point)	11½@12	11½@12	11 @12
NORTH TEXAS—			
41-43 water white Kerosene	3¾@ 4¼	3¼@ 3¾	3¼@ 3¾
41-43 prime white Kerosene	3½@ 4	3½@ 3¾	3 @ 3¼
40-42 prime white Distillate	3¼@ 3¾	2¾@ 3¼	2¾@ 3
NORTH LOUISIANA-SOUTH ARKANSAS—			
41-43 water white Kerosene	3½@ 4	3½@ 4	3½@ 4
ROCKY MOUNTAIN STATES—			
41-43 water white Kerosene	8½@ 8¾	8½@ 8¾	8½@ 8¾
PENNSYLVANIA—			
43 Kerosene	5¾	5¼	5¼
45 Kerosene	6¼	6	6
46 Kerosene	7¼	7¼	6
47 Kerosene	7¾	7¾	7½
36 Miners' Neutral	7	7	7

LONDON

	May 30	May 23	May 16
Bunker Fuel Oil, delivered, ton (shillings)	70	70	70

FUEL OILS

CHICAGO DISTRICT (Based on Gr. 3)—	May 30	May 23	May 16
24-26 Fuel Oil (sellers' cars, Group 3)	95 @105	90 @95	85 @95
32-36 Gas Oil	3 @ 3¼	3¼@ 3½	3½@ 3⅝
KANSAS (Group 2)—			
24-26 Fuel Oil	110 @120	110 @120	110 @120
32-36 Gas Oil	3¾@ 4	3¾@ 4	3½@ 3¾
OKLAHOMA (Group 3)—			
24-26 Fuel Oil (buyers' cars)	95 @105	95 @100	90 @95
24-26 Fuel Oil (sellers' cars)	95 @105	95 @100	90 @95
28-30 Fuel Oil (sellers' cars)	100 @105	100 @110	95 @100
32-36 Gas Oil	3⅛@ 3¼	3 @ 3¼	2⅞@ 3
NORTH TEXAS—			
24-26 Fuel Oil	77½@85	75 @85	70 @80
26-30 Fuel Oil	85 @100	80 @90	80 @90
32-36 Gas Oil	2 @ 2¼	2 @ 2¼	2 @ 2¼
36-38 Gas Oil	2¼@ 2½	2¼@ 2½	2¼@ 2½
38-40 Straw Distillate	2¼@ 2⅜	2⅛@ 2⅜	2⅛@ 2⅜
NORTH LOUISIANA-SOUTH ARKANSAS—			
24-26 Fuel Oil	80 @90	80 @90	80 @90
32-36 Gas Oil	2½@ 2¾	2½@ 2¾	2½@ 2¾
GULF COAST (SOUTH TEXAS)—			
Gas Oil	3½@ 4½	3½@ 4	3¼@ 3¾
Gulf Coast Fuel	115 @125	110 @125	110 @125
PENNSYLVANIA—			
36-40 Fuel Oil	4⅞	4¾	4¾
30-34	4⅝	4½	4½
34 Miners' Neutral	7	7	7

NEUTRAL OILS

OKLAHOMA—	May 30	May 23	May 16
Pale Neutrals:			
70-80 vis., 2½ color, 20-25 cold test	6 @ 6¼	6 @ 6¼	6 @ 6¼
100 vis., 2 color, 20-25 cold test	7	..	..
100 vis., 3 color, 20-25 cold test	6½	..	..
150 vis., 3 color, 20-25 cold test	10½	..	..
150 vis., 4 color, 20-25 cold test	10	..	..
180 vis., 3 color, 23-28 cold test	12½	..	..
180 vis., 4 color, 23-28 cold test	12	..	..
200 vis., 3 color, 23-28 cold test	13	..	..
200 vis., 4 color, 23-28 cold test	12½	..	..
220 vis., 3 color, 25-30 cold test	14	..	..
220 vis., 4 color, 25-30 cold test	13½	..	..
240 vis., 4 color, 25-30 cold test	14½	..	..
280 vis., 3 color, 25-30 cold test	18	..	..
280 vis., 4 color, 25-30 cold test	17	..	..
300 vis., 3 color, 25-30 cold test	19	..	..
Red Neutrals:			
180 vis., 5 color, 23-28 cold test	11½	..	..
180 vis., 6 color, 23-28 cold test	11	..	..
200 vis., 5 color, 23-28 cold test	12	..	..
200 vis., 6 color, 23-28 cold test	11½	..	..
220 vis., 5 color, 25-30 cold test	13	..	..
220 vis., 6 color, 25-30 cold test	12½	..	..
240 vis., 5 color, 25-30 cold test	14	..	..
240 vis., 6 color, 25-30 cold test	13½	..	..
280 vis., 5 color, 25-30 cold test	16	..	..
280 vis., 6 color, 25-30 cold test	15	..	..
300 vis., 5 color, 25-30 cold test	18	..	..
Cylinder Stocks:			
150-160 vis., 1 color, 40-50 cold test	7½@ 8¼	7½@ 8¼	7½@ 8¼
190-200 dark green, 40-50 cold test	6 @ 7	6 @ 7	5 @ 6
600 steam refined	16½	16½	16
590-600 Bright Stock	32	32	30
Waxes:			
122-124 White Crude Scale Wax	2 @ 2⅛	2 @ 2⅛	1⅞@ 2
PENNSYLVANIA—			
150, 3 color	20	19	19
180, 3 color	23	22½	22½
200, 3 color	25	25	24½
220, 3 color	27	27	27
600, steam refined	13	13	11½
635, steam refined	15¾	15¾	15
650, steam refined	17½	17½	16½
600, Penn. flash	21½	21½	21
630, Penn. flash	26	26	26
*550, E filtered	19	18½	18½
*600, E filtered	21	21	21
600, E filtered	19	19	17¼
600, D filtered	26	26	25
550, E filtered	16	16	16
550, D filtered	20½	20½	20
Penn. Bright Stock	37	37	37
Winter Black Oil	7	7	6
†122-124 White Crude Scale Wax	2½	2½	2½
†124-126 White Crude Scale Wax	2⅝	2⅝	2⅝

*At Warren, Ohio. †At New York City.

GULF COAST (SOUTH TEXAS)—
Lubricating Stocks: (All prices unchanged)

REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All American Oil Fields

MOTOR NATURAL GASOLINE (BLENDS)

CHICAGO DISTRICT (Based on Gr. 3)—	May 30	May 23	May 16
60-62 450 end point	17¾@18	18 @18½	17½@17¾
64-66 450 end point	17¾@18¼	18 @18½	17½@17¾
OKLAHOMA (Group 3)—			
68-70 430-435 end point	18½@18¾	18¾@19	18¾@19
64-66 450 end point	18¾@18½	18½@18¾	18½@18¾
60-62 450 end point	18¾@18½	18½@18¾	18½@18¾
58-60 440-450 end point	17½@18	18½@18¾	18½@18¾
NORTH TEXAS—			
58-60 440 end point	17½@18	..	..
58-60 450 end point	17¼@17¾	..	..
PENNSYLVANIA—			
*60-62	22	21½	20
*64-66	22	21½	20
*66-68	22	21½	20
*68-70	22	21½	20

*At Sistersville, W. Va.

ROAD OILS

CHICAGO DISTRICT (Based on Gr. 3)—	May 30	May 23	May 16
50-60 Asphaltic content (Group 3)	125 @135	130 @135	130 @135
50-60 Asphaltic content (delivered)	5¼@ 5¾	5¼@ 6¼	5¼@ 6
OKLAHOMA (Group 3)—			
40-60 Asphaltic content	120 @125	120 @125	120 @125
60-70 Asphaltic content	130 @135	130 @135	130 @135

NEW YORK EXPORT PRICES

	May 30	May 23	May 16
Motor Gasoline, in cases, gal.	33¼	33¼	33¼
Motor Gasoline, U. S. Navy spec., gal.	20	20	20
Naphtha, 60° F., 50-61 spec. grav.	22	22	22
Naphtha, 60° F., spec. grav.	25	25	25
Naphtha, 60° F., 66-68 spec. grav.	26	26	26
Kerosene:			
Standard white, in bulk, gal.	6	6	6
Standard white, in bbls., gal.	12	12	12
Standard white, in cases, gal.	15½	15½	15½
Water white, in bulk, gal.	7	7	7
Water white, in bbls., gal.	13	13	13
Water white, in cases, gal.	16½	16½	16½

NEW YORK DOMESTIC MARKET

	May 30 (gal.)	May 23 (gal.)	May 16 (gal.)
Motor Gasoline:			
Greater New York, in steel bbls.	27	27	27
New York State (outside Greater New York) and New England, tank wagon	27	27	27
Bulk delivered at New York	21½@24	19½@21½	19½@21½
New Jersey, tank wagon	26	26	25
V.M.P. Naphtha, in steel bbls.	26	26	25
Kerosene:			
Greater New York, tank wagon	13	13	13
New York State (outside Greater New York) and New England, tank wagon	14	14	14
Bulk, delivered at New York	7½@ 9	7½@ 9	7½@ 9
New Jersey, tank wagon	11	11	11
Lubricating Oil (industrial) at refinery, Bayonne, N. J.:			
Cylinder, light filtered, in bbls.	38	38	38
Cylinder, dark filtered, in bbls.	33	33	33
Cylinder, Bright Stock	46	46	46
Cylinder, steam refined (600)	22½	22½	22½
Black, in bulk	10	10	10
Bloomless, white, 30@31 gravity, 170 vis.	43	43	43
Bloomless, 885 specific gravity	18	18	18
Red Paraffin:			
170 vis.	20	20	20
212 vis.	22	22	22
265 vis.	24	24	24
295 vis.	27	27	27
Paraffin, 903 specific gravity	25	25	25
Spindle, 200 vis. at 100	27	27	27
Lubricating Oil (motor), discount to dealers:			
Cylinder, in bbls.	100 @105	100 @105	100 @105
Steam tractors, in bbls.	100	100	100
Transmission and differential, in bbls.	9½@12½	9½@12½	9½@12½
Motor Grease, in bbls., pound	13	13	13
*Fuel Oil:			
Bunker Oil, 14 plus, delivered in barges, bbl.	120	120	110
Diesel Fuel, 26 plus, at refinery, gallon	4¼	4¼	4¼
Gas Oil, delivered in New York	6	6	5¾
Wax, fully refined:			
120-122 a.m.p.	3	3	3
125-127 a.m.p.	3⅛	3⅛	3⅛
130-132 a.m.p.	3¾	3¾	3¾
135-137 a.m.p.	4⅛	4⅛	4⅛

*Lighterage 6.5 cents a barrel extra.

MEXICAN CRUDE OIL

	May 30	May 23	May 16
F.o.b. Terminals, Mexican Ports (based on contracts):			
*Tuxpam Crude Oil, bbl.	85	85	85
†Panuco Crude Oil, bbl.	55	55	55

*Plus 26.75 cents tax. †Plus 16.63 cents tax.

*New York Prices (nominal):			
Tuxpam Crude Oil, bbl.	147	147	147
Panuco Crude Oil, bbl.	107	107	107

*Based on cost.

CALIFORNIA REFINED OILS

(Note.—The following are the current quotations in Los Angeles for the different products of crude petroleum. It can be seen that many of the products have not changed in value for months.)

(Dates effective shown in parentheses)

Fuel Oil, 14° at tanks, per bbl., 42 gal. (8-3-21)	$1.50
Diesel Engine, fuel, per bbl. (5-13-21)	2.73
Gasoline, tank wagons or iron bbls., per gal. (8-3-21)	.23
Kerosene, water white, in cases, 2-5s, per gal. (7-22-20)	.29
Kerosene, water white, in bulk, per gal. (7-22-20)	.16½
Kerosene, 150 test, in cases, 2-5s, per gal. (7-22-20)	.36½
Engine Distillate, in bulk, per gal. (2-20-21)	.17
Stove Distillate, 120 flash, in bulk, per gal. (4-18-21)	.09¼
Furnace Distillate, 130 flash, bulk, per gal. (4-18-21)	.08½

CRUDE OIL PRICES

Changes in Crude Oil Market Since February 22, 1922—Quotations Include Wednesday of the Present Week.

Feb. 22—Standard of Louisiana makes differential of 30 cents on Haynesville crude as follows: Two-thirds of all producers' direct runs, $1.85 for oil testing 34° and above; $1.75 for oil testing below 34°. For the remaining one-third run to storage, $1.50 for 34° and above, and $1.40 for oil below 34°.

March 17—The Texas Co. advanced Mexia 25c. Humble followed suit same day; Magnolia met price March 21.

April 20—The Standard of Louisiana removed the 30c differential on Haynesville crude made Feb. 22.

May 25—The Humble Oil & Refining Co. advanced the price of Orange crude 25c. The Texas Co. met price May 26.

Kansas and Oklahoma

All grades (excepting Healdton)	$2.00
Duncan-Comanche	2.00
Healdton	1.00
Hewitt	2.00
Cement	1.30
Walters	1.00

North Texas and Panhandle

Electra	$2.25
Henrietta	2.25
Moran	2.25
Thrall	2.25
Burkburnett	2.25
Stephens County	2.25
Corsicana, light	1.30
Corsicana, heavy	.75
Strawn	2.25
Ranger	2.25
Desdemona	2.25
Mexia	1.50

Gulf Coast

Sour Lake	$1.25
Humble	1.25
Markham	1.25
Goose Creek	1.25
Vinton	1.25
West Columbia	1.25
Orange	1.25
Jennings	1.25
Spindletop	1.25
Pierce Junction "A"	1.25
Pierce Junction "B"	.80
Hull "A"	1.25
Hull "B"	.80

Northern Louisiana

Caddo, 38° and above	$2.00
Caddo, 35° to 37.9°	1.90
Caddo, 32° to 34.9°	1.85
Caddo, heavy	1.25
Homer, 36° and above	2.00
Homer, 34° to 35.9°	1.90
Homer, 32° to 33.9°	1.85
Homer, below 32°	1.50
Bull Bayou, 38° and above	1.90
Bull Bayou, 35° to 37.9°	1.80
Bull Bayou, 32° to 34.9°	1.75
Crichton crude	1.75
De Soto crude	2.00
El Dorado (Ark.), 34° and above	2.00
El Dorado (Ark.) below 34°	1.75
Haynesville, 34° and above	1.85
Haynesville, below 34°	1.75
Bellevue	1.00

Wyoming Crude Oil Market

Rock Creek, Wyo.	$1.50
Salt Creek	1.40
Big Muddy	1.40
Mule Creek	1.35
Grass Creek	1.90
Elk Basin	1.90
Lance Creek	1.90
Osage	1.90
Cat Creek, Mont.	1.90
Lander	.87¼

California Quotations

14° to and including 17.9°	$1.10
18° to and including 18.9°	1.11
19° to and including 19.9°	1.13
20° to and including 20.9°	1.16
21° to and including 21.9°	1.20
22° to and including 22.9°	1.25
23° to and including 23.9°	1.31
24° to and including 24.9°	1.38
25° to and including 25.9°	1.46
26° to and including 26.9°	1.55

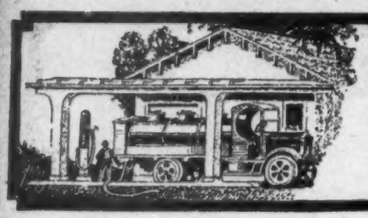
For each full degree above 26.0°, to and including 34.9°, 10c additional will be paid.

35° and above	$2.45

Eastern States

Pennsylvania	$3.25
Cabell	2.11
Corning	1.90
Lima	2.48
Wooster	2.60
Ragland	1.00
Illinois	2.27
Indiana	2.28
Plymouth	1.65
Somerset	1.90
Somerset, above 28°	2.15
†Western Kentucky	1.90
Waterloo	1.75
*Petrolia, Canada	2.88
*Oil Springs, Canada	2.95

*Plus Government bounty of 52½c.
†Paragon Dev. Co. paying 25c premium.



TANK WAGON MARKETS

Tank wagon quotation for gasoline and kerosene in the United States, as furnished by the larger marketing concerns, May 24.

STANDARD OIL CO. (INDIANA)

Main Service Station Price

	Gasoline: Tank wagon	Gasoline: Service station	Oil: Tank wagon
Chicago district	22.0	24.0	11.5
Decatur, Ill.	23.0	25.0	12.2
Joliet	21.7	23.7	12.5
Peoria	23.0	25.0	12.2
Quincy	22.8	24.8	12.0
Davenport, Iowa	23.5	25.5	12.6
Des Moines	23.4	25.4	12.7
Keokuk	23.4	25.4	12.4
Sioux City	23.4	25.4	12.7
Duluth, Minn.	24.4	26.4	12.0
Minneapolis	23.7	25.7	13.0
La Crosse, Wis.	24.0	26.0	13.1
Milwaukee	22.7	24.7	11.8
Detroit, Mich.	23.4	25.4	12.5
Grand Rapids	23.3	25.3	12.4
Saginaw	23.5	25.5	12.6
Evansville, Ind	22.6	24.6	12.0
Fort Wayne	23.0	25.0	12.4
Indianapolis	22.8	24.8	13.5
South Bend	23.0	25.0	12.4
Fargo, N. Dak.	26.5	28.5	14.7
Huron, S. Dak.	25.5	27.5	13.5
Kansas City, Mo.	21.5	23.5	10.5
Springfield	22.6	24.6	11.6
St. Louis	22.2	24.5	11.2
St. Joseph	21.5	23.5	11.6
Kansas City, Kans.	22.3	24.3	10.5
Wichita, Kans.	22.0	24.0	11.0
Bartlesville, Okla.	21.5	23.5	10.4

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline: Tank wagon	Gasoline: Service station	Oil: Tank wagon
Dallas, Tex.	22.0	25.0	12.0
Fort Worth	22.0	25.0	10.0
Houston	22.0	25.0	12.0
Galveston	22.0	25.0	12.0
San Antonio	22.0	25.0	12.0
Amarillo	23.0	26.0	13.0
El Paso	23.0	26.0	13.0
Com. Texas points	22.0	25.0	12.0
Differ. Terr. Texas	23.0	26.0	13.0
Muskogee, Okla.	22.0	25.0	11.0
Oklahoma City	22.0	25.0	9.0
Tulsa	22.0	25.0	10.0
*Fort Smith, Ark.	25.0	28.0	12.0
*Little Rock	23.0	26.0	13.0
*Pine Bluff	25.0	28.0	13.0
*Texarkana	23.0	26.0	12.0

*Includes Arkansas State tax of 1 cent.

SOUTHEASTERN TERRITORY

Standard Oil Co., Kentucky

	Gasoline: Tank wagon	Gasoline: Service station	Oil: Tank wagon
Atlanta, Ga.	27.0	29.0	14.0
Augusta	26.0	28.0	14.0
Macon	26.0	28.0	14.0
Savannah	24.0	26.0	12.0
Valdosta	27.0	29.0	14.5
Birmingham, Ala.	24.0	26.0	13.0
Mobile	23.0	25.0	12.5
Clarksdale, Miss.	25.5	27.5	11.5
Montgomery	25.0	27.0	14.0
Jackson	24.5	26.5	10.0
Natchez	25.0	27.0	11.0
Vicksburg	25.0	27.0	11.0
Jacksonville, Fla.	23.0	25.0	12.0
Miami	26.0	28.0	15.0
Pensacola	22.0	24.0	12.5
Tampa	23.0	25.0	12.0
Covington, Ky.	24.0	26.0	13.5
Lexington	25.0	27.0	12.0
Louisville	24.0	26.0	11.0

ATLANTIC TERRITORY

Atlantic Refining Co.

	Gasoline: Tank wagon	Gasoline: Service station	Oil: Tank wagon
Pittsburgh, Pa.	26.0	29.0	14.0
Philadelphia	26.0	29.0	14.
Dover, Del	26.0	29.0	14.0
Wilmington	26.0	29.0	14.0
Providence, R. I.	27.0	30.0	13.0
Springfield, Mass.	27.0	30.0	14.0
Hartford, Conn.	27.0	30.0	15.0
New Haven	27.0	30.0	14.0
Bridgeport	25.0	28.0	13.0

NEBRASKA DISTRICT

Standard Oil Co., Nebraska

	Gasoline: Tank wagon	Gasoline: Service station	Oil: Tank wagon
Crawford, Nebr.	21.0	..	11¼
Omaha, Nebr.	20.5	22.5	12¾

BUCKEYE DISTRICT

Standard Oil Co., Ohio

	Gasoline: Tank wagon	Gasoline: Service station	Oil: Tank wagon
All Ohio points	23.0	25.0	13.0

ATLANTIC COAST ZONE

Standard Oil Co., New Jersey

	Gasoline: Tank wagon	Gasoline: Service station	Oil: Tank wagon
Atlantic City, N. J.	26.0	28 0	11.5
Newark	26.0	28.0	11.5
Annapolis, Md.	26.0	28.0	11.5
Baltimore	25.0	27.0	10.5
Washington, D. C.	25.0	27.0	11.0
Norfolk, Va.	26.0	28.0	11.0
Petersburg	26.0	28.0	12.0
Danville	26.0	28.0	13.0
Richmond	26.0	28.0	11.0
Roanoke	27.0	29.0	13.5
Charleston, W. Va.	25.0	27.0	11.0
Keyser	26.5	28.5	11.5
Parkersburg	24.5	26.5	9.5
Wheeling	25.0	27.0	11.0
Charlotte, N. C.	26.5	28.5	13.0
Hickory	27.0	29.0	13.5
Mt. Airy	27.0	29.0	13.5
Salisbury	25.5	27.5	13.5
Charleston, S. C.	25.5	27.5	10.0
Columbia	27.5	29.5	12.0

NEW ENGLAND REGION

Standard Oil Co., New York

	Gasoline: Tank wagon	Gasoline: Service station	Oil: Tank wagon
Albany, N. Y.	26.0	28.0	14.0
*New York	26.0	28.0	13.0
Buffalo	26.0	28.0	14.0
Boston, Mass.	26.0	28.0	14.0
Providence, R. I.	26.0	28.0	14.0
Augusta, Me.	26.0	28.0	14.0
Manchester, N.H.	26.0	28.0	14.0
Burlington, Vt.	26.0	28.0	14.0

*Price in steel barrels.

ROCKY MOUNTAIN REGION

Continental Oil Co.

	Gasoline: Tank wagon	Gasoline: Service station	Oil: Tank wagon
Denver, Colo.	25.0	27.0	15.0
Glenwood Springs	30.0	....	....
Pueblo	25.0	27.0	15.0
Basin, Wyo.	24.0	....	14.5
Casper	21.5	23.5	12.5
Cody	26.0	....	16.5
Cheyenne	24.0	26.0	14.0
Lander	24.0	....	15.0
Billings	27.5	29.5	16.5
Butte	27.5	29.5	18.5
Great Falls	29.5	31.5	18.5
Helena	29.5	31.5	18.5
Miles City	29.5	31.5	18.5
Ogden, Utah	28.0	30.0	17.5
Salt Lake	28.0	30.0	17.5
Boise, Idaho	28.5	30.5	20.0
Albuquerque, N. M.	28.0	30.0	16.0

PACIFIC COAST TERRITORY

Standard Oil Co., California

	Gasoline: Tank wagon	Gasoline: Service station	Oil: Tank wagon
Phoenix, Ariz.	26.5	28.5	21.0
Los Angeles, Cal.	21.0	23.0	14.5
Fresno	21.5	23.5	17.0
San Francisco	21.0	23.0	14.5
Reno, Nev.	25.0	27.0	18.5
Portland, Ore.	24.0	26.0	15.5
Seattle, Wash.	23.0	25.0	15.5
Spokane	27.0	29.0	20.0
Tacoma	23.0	25.0	15.5

CHICAGO TANK WAGON

(Chicago Territory)

Gasoline	22.0
Kerosene	11.5

Tank wagon prices on Jan. 25. 1921, down 2c on g., 3c on k.; Feb. 1, both down 2c; April 26, both down 3c; July 25c. g. down 2c; Oct. 15. g. up 1c; Oct. 23, k. up 1c; Nov. 9. g. up 1½c, k. 1c; Apr. 10, g. up 1½c; May 8, g. up 1c.

CENTRAL SOUTH DISTRICT

Standard Oil Co., Louisiana

	Gasoline: Tank wagon	Gasoline: Service station	Oil: Tank wagon
New Orleans, La.	24.5	27.5	11.0
Alexandria	25.0	28.0	12.0
Baton Rouge	23.5	26.5	10.5
Lake Charles	25.5	28.5	12.5
Shreveport	23.0	26.0	10.0
Memphis, Tenn.	24.5	27.5	12.5
Chattanooga	26.0	29.0	14.5
Knoxville	26.5	29.5	15.0
Nashville	25.0	28.0	13.0
*Little Rock, Ark.	25.0	28.0	13.0
*Camden	25.0	28.0	13.0

*Road tax, 1 cent.

LAST MINUTE *from* OKLAHOMA

The sensation in the fields of Oklahoma at the end of the week in review was Charles Page's well in Section 2-18-12, about 5 miles south of Tulsa, which Monday night was flowing wild. The well lies at Tulsa's doorstep and created great excitement in oil circles. The operators were unprepared for the big flow, which filled a tank and pond and then flowed over the ground. The well drilled itself in after topping the pay at 2,098 feet. On Wednesday morning, May 31, after the pipe line had hooked on, the well had fallen off to 40 bbls. an hour. It was also making about 10,000,000 feet of gas. The Gladys Bell Oil Co.'s east offset to this well, located in Section 1-18-12, was flowing at the rate of 1,500 bbls. daily on Wednesday. This well got the pay 10 feet lower than the Page well. The third well in the deep sand in this interesting district this week is the West, Obins, Webber & Smith well, CWL SW SW, Section 1-18-12, which was flowing at the rate of about 1,200 bbls. daily from 2 feet in the sand on Saturday. This well had settled down to 30 bbls. an hour on Wednesday morning.

The Phillips Petroleum Co. and the Skelly Oil Co. completed three wells in the Burbank Field, Osage County this week, one of which is located on the tract for which the companies paid $1,335,000 at the last Osage sale. The price paid by the companies is justified by the fact that the well is one of the largest natural producers ever brought in at Burbank. It is No. 1 on the lease, SE cor. NE, Section 25-27-5, and started at the rate of 2,000 bbls. daily from sand 2,904-40 feet. It also extends production in the pool about a quarter of a mile north. The companies' No. 5 in the NW of Section 30-27-6, an east offset to the well, came in at the rate of 800 bbls. daily after the shot, and No. 6, located to the north of it, started at 600 bbls. after the shot. The three wells added 3,400 bbls. to the daily production of the companies at Burbank.

The semi-wildcat well of the Roland Oil Co. in the Bristow district, Creek County, No. 1 Deere, SW cor. NE, Section 23-16-8, is in and flowing at the rate of about 250 bbls. daily from the Dutcher sand. Former estimates on this well placed it as high as 1,000 bbls. daily.

Two new wells in the Bristow district, Oklahoma, were being drilled into the sand, one of them giving promise of being one of the largest wells completed in the Continental Pool to date. It is the Waite Phillips' No. 1 Charles Posey, SE cor. 27-16-9, a west offset to the same owners' well which flowed 215 bbls. the first hour and was brought in the first part of the week. The new well topped the Dutcher sand at 2,980 feet and was flowing at the rate of 30 bbls. an hour without being drilled in. The Wilcox Oil & Gas Co. was drilling in No. 3 Harjo SW cor. E half NW, Section 35-16-8. The well had topped the Dutcher sand, but it was too early for an estimate of its production value.

The third well in the new pool opened by Gillette and others in the Mannford district, Pawnee County, has topped the sand and was getting ready to drill in with 400 feet of oil in the hole. It is the E. P. Harwell and others' No. 1 Walker, SW cor. NE, Section 36-20-8, a northeast diagonal offset to the original well and an east offset to the McMann Oil Co.'s well, which is still flowing at the rate of 470 bbls. daily. The sand record was unavailable.

The Roland Oil Co.'s well in Section 2-15-8, Creek County, which is three weeks old and credited with being the largest producing well in Oklahoma, was still flowing at the rate of 8,700 bbls. daily on Tuesday.

Mutual Takes Over Boston Wyoming Oil Co.

CASPER, Wyo., May 31.—The Mutual Oil Co., formerly El Basin Consolidated, has completed its merger, taking over the Boston-Wyoming Oil Co. There is also another merger pending by which the Mutual takes over the Wyoming Oil Fields Co. This will give the Mutual a strong position in the central Salt Creek Field, and the Mutual will lay a pipe line from Salt Creek to its refinery at Glenrock, a distance of about 60 miles.

F.B.T.

NATIONAL TRANSIT DIVIDEND

OIL CITY, Pa., May 26.—The National Transit Co. has declared a regular dividend of 50 cents, payable June 15 to stockholders of record May 31.

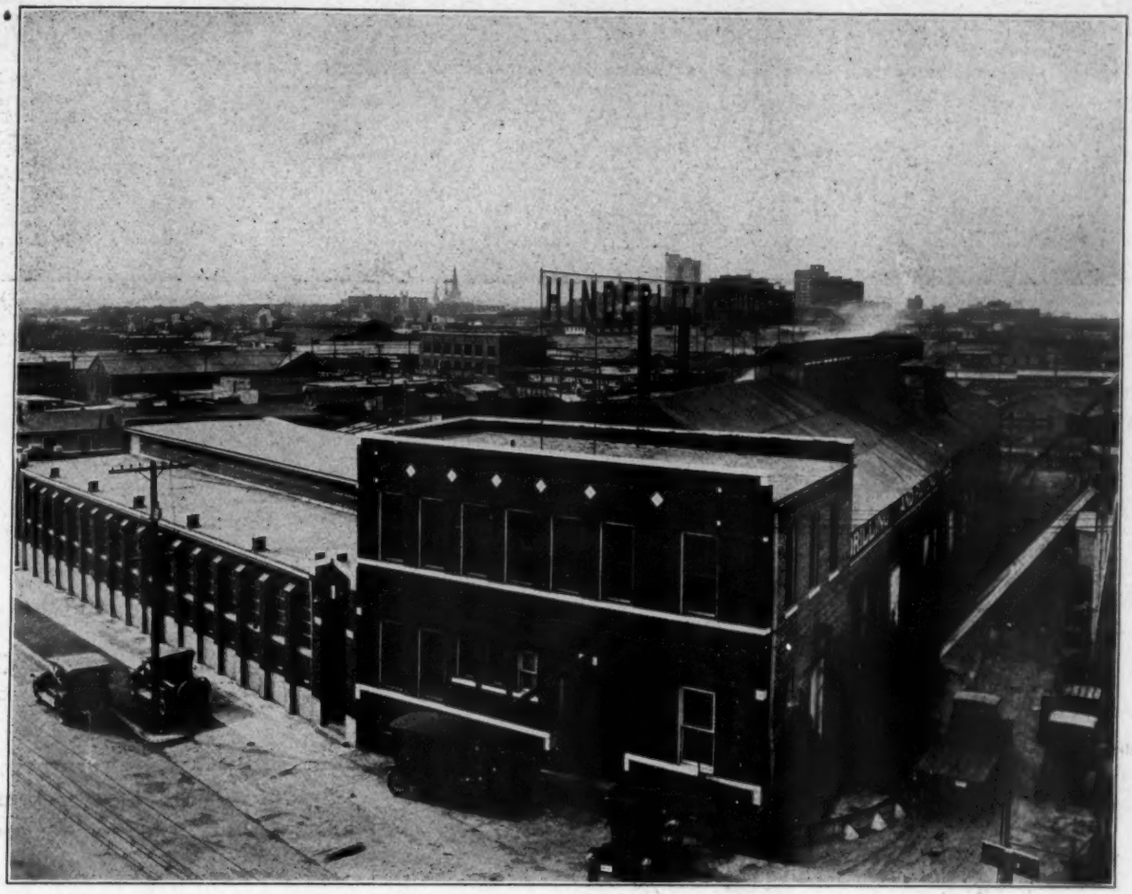
S. W. PENN DIVIDEND

OIL CITY, Pa., May 25.—The South West Pennsylvania Pipe Lines today declared a quarterly dividend of $1 payable July 1 to stockholders of record June 15.

ASK REDUCTION IN RATE

WALTERS, Okla., May 27.—The Walters City Commission, headed by Fred Arrington, has joined Dr. W. B. Harned and other residents of Walters in a petition to the Corporation Commission asking for a reduction of rates charged by the Walters Gas Co. The present basic rate is 75 cents for the first 1,000 cubic feet. The petitioners recall that prices of commodities, labor and original costs have been so reduced in this section of the country that the gas company is not entitled to this rate. The Walters Gas Co. is a subsidiary of the McBride Gas Co. of St. Louis. The commission has set June 2 as a date for hearing the complaint.

W. F. K.



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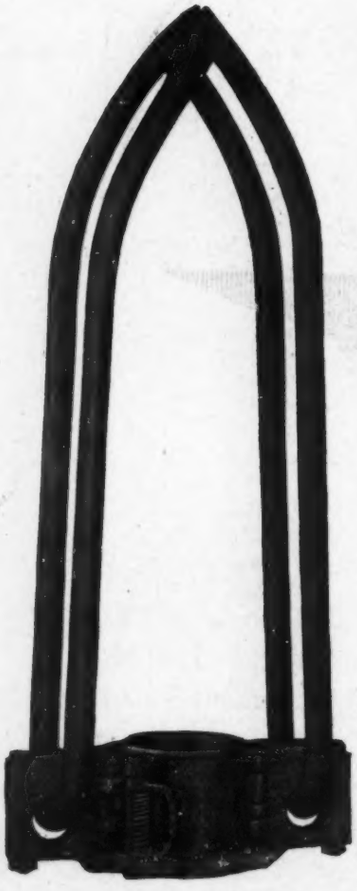
Lucey Elevators



The equipment for putting in casing should be carefully selected and of sufficient strength to handle safely the weight of the casing to be used. Particular attention should be given to the elevators.

The LUCEY REX ELEVATOR is acknowledged by oil field men to be the fastest and safest elevator on the market today for both setting casing and pulling pipe. A specially constructed spring latch insures positive locking of the gate under all conditions. All parts are machined to a true radius, and when once latched up, it is impossible for the gate to come open and drop casing. The use of interchangeable links permits the operator to carry one set of links for several elevators. Every link is tested on a specially constructed testing machine to make certain that it is properly welded throughout. The Lucey Corporation is the only elevator manufacturer furnishing "Certified Elevator Links."

Lucey Spider and Slip

To insure absolute safety in pulling or holding strings of drive pipe or casing, a casing spider and slips should be used in conjunction with the elevator. Lucey Spider Liners and Slips are made of hot forged steel—properly heat treated—accurately threaded to gauge and equipped with solid steel handles so that they may be inserted or removed easily and quickly.

Lucey Spider Liners and Slips are indispen of derrick floors in all parts of the country. next operation.

Sales Offices: **New York, Pittsburgh, Los Angeles, Houston, Fort Wort, Beaumont, Shreveport, Tulsa, C**

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Cable Tools

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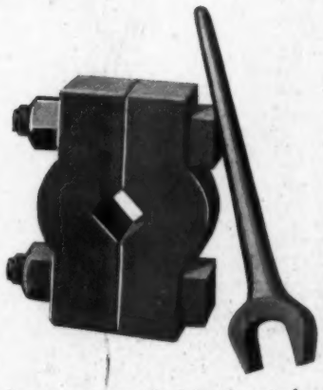

Lucey Drive Clamps for driving pipe or casing and Lucey Casing Clamps for pulling or taking out the slack in casing are invaluable tools on any derrick floor. Both are made of hot forged steel properly heat treated and counter-sunk for bolt heads and are guaranteed to give absolute satisfaction under all conditions. All standard sizes are carried in stock by the nearest Lucey warehouse.

...port, ...ulsa, Casper, San Francisco *Plants:* **Chattanooga, Tenn.—Houston, Tex.**
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...CEY ...G CORPORATION WHEREVER THE NAME IS A LUCEY GUARANTEE THERE'S OIL

Oil Securities Regain Leading Position

Developments of Constructive Nature in Standard Oil Group Stimulate Interest and Activity. Many New High Prices Recorded.

By N. O. Fanning

New York, May 27.—Oil stocks have again assumed leadership on the New York Stock Exchange. In many cases stocks that lagged in the previous upward movement caught up to the others and many new high prices were recorded for the year. The Standard Oil stocks stood out because of their activity and strength. On Tuesday The Oil and Gas Journal's average price of 20 representative oil stocks listed on the Exchange reached a high record of 57.56, compared with 55.90 the week before and a previous high of 56.65 on May 2.

Recent developments in the Standard Oil group have been of a constructive nature, which has done much to stimulate interest and activity in these stocks. One of these developments was the publication of the annual statement of the Prairie Pipe Line Co. for 1921, showing net earnings after all charges of $15,760,500, equivalent to $58.37 per share on the $27,000,000 capital stock (par $100) outstanding. In the three years ended December 31, 1921, the company earned 126.75 per cent on its stock. Prairie Pipe Line stock sold up to a high of 148 following the issuance of the report.

Standard Oil of Kentucky was also strong, reaching a new high price of 96, largely because of the belief that the company will raise its dividend rate on the new stock. Recently a block of this stock was offered to investors by a New York banking house for $77 per share.

New High for Standard of Indiana

Standard Oil of Indiana also registered a new high price for 1922 of 115. Rumors have been spreading in the street regarding the taking over of other concerns by Standard Oil of Indiana, such big organizations being mentioned as Gulf Oil Corporation, Sinclair Consolidated and others. The presidents of the two last named companies have vigorously denied that they were selling out.

Reasons for the rise in the stock of Standard Oil of Indiana can be found elsewhere than in wild rumors of consolidation. Standard Oil of Indiana is the leading gasoline marketing organization in the United States, and therefore stands to gain most by the recent advance of 3 cents per gallon in the price of gasoline. It is understood that the company now has more than 100,000,000 gallons of gasoline in storage. The recent advance in prices therefore adds $3,000,000 to the value of the company's gasoline stock, and judging from the new record being made in consumption of gasoline, the company stands to make a big profit.

Furthermore, Standard Oil of Indiana has been getting a big yield of gasoline from the rich Wyoming crude which it runs—estimated run up as high as 65 per cent and this gasoline is being delivered to the Anglo-American Oil Co. for export.

Gasoline is the big factor in refinery profits this year, and the Standard Oil Companies along with others using efficient gasoline extracting process, will be the ones to benefit most. The Texas Co. recently concluded an agreement with the Standard Oil Co. of Indiana whereby each company could use the others' patented gasoline extracting equipment, and could license it to others. Standard Oil of Indiana's chief asset is the famous Burton cracking process, while The Texas Co. has been using the Adams process to advantage for years. The Texas Co. stock has hung back recently, when other oil issues were advancing.

Phillips Petroleum Strong

Stock of the Phillips Petroleum Co. has been particularly strong. It made a new high for the year of 54⅜. It is reported the company is in a position to increase the dividend. It is paying now at the rate of $2 per year on the stock (no par value).

It is persistently reported that Sinclair Consolidated contemplates inaugurating dividends on the common stock at the rate of $4 per annum. It is known that some of the directors are in favor of it.

California Petroleum, which earned $12 per share on its common stock in 1921, is expected to show even larger earnings this year. No dividends are being paid on the stock at present, but the stock has had a substantial rise in anticipation of the commencement of dividends.

Barnsdall Corporation stock scored a substantial recovery during the past week, but as yet has not reached its previous high price of 56¼. A strong pool is operating in this stock. Reports that the pool was dissolved, current about a week ago, have since been disproved by the strong support the stock has received.

The Mexican issues have been somewhat stronger. Mexican Petroleum has registered a new high of 137½, while Island Oil, which is in receivership, reached 1¼, against a low of ⅝.

Oil Financing

During the week Dominick & Dominick offered $600,000 Phillips Petroleum Co. 10-year 7½ per cent debenture bonds, being a part of the outstanding $3,500,000 bonds in the hands of the public. The statement accompanying the offering says that the company's net earnings, after taxes, but before depletion and depreciation, are at present at the rate of $10,000,000 per annum, which is more than 16 times the maximum annual interest and sinking fund charges on these bonds. They offered at 103, to yield about 7.05 per cent.

Financial Notes

A merger of oil companies operating in the Wyoming oil fields is being discussed, the companies mentioned being Mutual Oil Co., Mountain & Gulf Co. and Boston & Wyoming Oil Co. Negotiations are for the absorption of the two latter companies by the Mutual. Mutual Oil now owns 20 per cent and the Boston & Wyoming more than 25 per cent of the Mountain & Gulf Co., so that a consolidation of the Boston & Wyoming and Mutual companies would give the latter almost 50 per cent of the Mountain & Gulf Co.'s stock.

An agreement has been reached between the Standard Oil Co. of New Jersey and the Penn Mex Fuel Co. under which the former will develop the Hacienda Paciencia, in the Panuco district, which is owned by the Penn Mex Fuel Co.

Formal transfer to the Atlantic Refining Co. of approximately 1,300,000 bbls. of Haynesville and Homer crude oil, thirty-three 55,000-bbl tanks, 40 miles of pipe line, gathering systems, loading racks, pumping station and all other pipe line and tank farm equipment of the Gilliland Oil Co., was completed at Shreveport recently. Atlantic Refining Co. representatives gave a check for $3,300,000 to the receivers for the Gilliland Co. The sale is in pursuance of action by Judge Jack, of Shreveport, sitting in the Federal Court at Wichita Falls, Tex. As a result of the sale, the Foster mortgage on the properties will be retired and other privileged claims taken care of.

Action of the Island Oil Marketing Corporation (a subsidiary of the Island Oil & Transport Co.) against the New England Oil Corporation for damages on breach of contract has resulted in a favorable decision for the Island Co. Trial was held in the Federal District Court at Norfolk and the jury brought in a verdict of $1,161,000 with 6 per cent interest from February 1, 1922, in favor of the Island Oil Marketing Co.

The action was based on claims for damages when the New England Oil Corporation failed to fulfill its contract on a purchase of crude oil from the Island Co. The contract originally was for 2,700,000 bbls. of Mexican crude oil at $1.60 per barrel f.o.b. Mexican ports and ran for one year from December 1, 1920. An amended contract was made running four months from May, 1921, providing for a price for the oil from 50 cents to $1 per barrel. When the four months under the amended contract had elapsed the New England Oil Corporation is held to have failed to go ahead with its takings of oil at the old price of $1.60 per barrel and litigation followed.

(Continued on Page 64)

NEW YORK STOCK EXCHANGE—LIST OF ACTIVE STOCKS

No.	Stock—	Par	An.Div.	Clos. Quot. May 29	Clos. Quot. May 23	Range, 1922— High	Range, 1922— Low
1.	Associated Oil	100	8	126	126	135½	99
2.	Atlantic Refining	100	20	*1060	1050	1140	920
3.	Barnsdall A	25	..	49½	46⅜	56¼	19⅜
4.	Barnsdall B	25	..	36	*33	39	..
5.	Caddo Central Oil	..	..	13⅝	13⅞	15⅛	10⅛
6.	California Petroleum	100	..	61½	57⅛	61½	42⅛
7.	California Petroleum pfd.	100	7	95	*95	98½	83
8.	Cosden & Co.	..	†2½	44⅝	44¼	45⅝	31⅝
9.	General American Tank	..	†3	*62	63	67⅞	45⅝
10.	General Asphalt	100	..	65	63	67	55½
11.	Houston Oil	100	..	81	79½	83⅝	70
12.	Indiahoma Refining	5	..	4¼	4⅝	4⅞	3¼
13.	Indian Refining	10	..	*9⅝	*7⅞	10	5⅜
14.	Invincible Oil	50	..	18⅜	18⅝	20¼	12⅝
15.	Island Oil & Transport	10	..	1⅛	1⅛	3	⅝
16.	Kansas & Gulf	10	..	5	5	7½	4⅜
17.	Marland Oil	..	..	35⅞	31⅞	36¼	22⅝
18.	Mexican Petroleum	100	12	138⅛	133¼	139¼	106⅝
19.	Middle States Oil	10	12	15⅛	15½	16	11⅝
20.	Oklahoma Producing & Refining	5	..	2⅞	3	3⅜	2¼
21.	Pacific Oil Co.	..	†3	64	65	69⅝	44⅜
22.	Pan American	50	12	69⅛	65½	69⅞	48⅞
23.	Panhandle Producing & Refining	..	..	7⅛	7⅛	12	7¼
24.	Phillips Petroleum	..	†2	56¼	49½	57	28¼
25.	Pierce Oil	25	..	10	10¼	12	7
26.	Pierce Oil, pfd	100	..	55	55⅝	71	39
27.	Producers & Refiners	50	..	47¼	43	47⅝	24⅛
28.	Pure Oil Co.	25	9	32⅝	32⅛	38⅝	29⅝
29.	Royal Dutch, N. Y. sh.	13.40	†5.20	64⅛	62⅝	66⅝	47¼
30.	Shell Transport	10	† .74	44½	45	48½	35⅝
31.	Sinclair Consolidated	..	..	36¾	36⅝	37¼	18⅜
32.	Standard of California	25	16	118⅝	115½	121	91⅝
33.	Standard of New Jersey	25	20	193	190½	196	169
34.	Standard of New Jersey, pfd.	100	7	115	116½	116¾	113⅝
35.	Superior Oil	..	..	7¼	7	8½	4⅜
36.	Texas Co., The	25	12	49⅛	49	50⅝	42
37.	Texas Pacific Coal & Oil	10	10	29⅞	29⅝	31⅞	23
38.	Tide Water Oil	100	..	129½	132	137¼	109⅝
39.	Transcontinental	..	..	19	19⅝	20⅛	7½
40.	Union Oil of Delaware	..	..	24⅝	22	24	17¼
41.	Union Tank, pfd.	100	7	105⅝	106	107⅝	102
42.	White Oil	..	..	10	9⅝	11⅜	7½
	Standard Oil Stocks						
43.	Anglo-American Oil	5	10	*21⅜	*20½	27⅜	16¼
44.	Borne Scrymser	100	20	*395	*370	380	335
45.	Buckeye Pipe Line	50	16	*96	*96	101	84½
46.	Chesebrough Mfg.	100	14	*200	*195	203	177
47.	Continental Oil	100	8	*144	*143	150	123
48.	Crescent Pipe	50	8	*34	*32	37	28
49.	Cumberland Pipe	100	12	*135	*135	165	120
50.	Eureka Pipe Line	100	8	*95	*95	104⅛	78½
51.	Galena-Signal, com.	100	..	*55	*53	62	40
52.	Galena-Signal, pfd. new	100	8	*100	*102	105	100
53.	Galena-Signal, pfd. old	100	8	*107	*108	114	104
54.	Illinois Pipe Line	100	16	*178	*190	198	158
55.	Indiana Pipe Line	50	20	*96	*93	106	82
56.	National Transit	12.50	16	*29	*29½	31½	27
57.	New York Transit	100	16	*173	*175	181	140
58.	Northern Pipe Line	100	10	*107	*107	109	91
59.	Ohio Oil Co.	25	27	*310	*317	335	256
60.	Penn. Mex Fuel	25	..	*37	*37	37½	16½
61.	Prairie Oil & Gas	100	19	*635	*620	635	518
62.	Prairie Pipe Line	100	12	*245	*223	248	225
63.	Solar Refining Co.	100	10	*360	*360	375	340
64.	Southern Pipe Line	100	8	*97	*98	105½	75
65.	South Penn Oil	100	8	*230	*213	235	165
66.	Southwest Pa. Pipe	100	4	*63	*63	70	50½
67.	Standard of Indiana	25	16	*121¾	*108¾	122	82⅞
68.	Standard of Kansas	100	12	*560	*560	575	500
69.	Standard of Kentucky, w. i.	25	12	*98½	*93½	99⅛	76
70.	Standard of Nebraska	100	10	*185	*190	210	130
71.	Standard of New York	100	16	*418	*409	428	341
72.	Standard of Ohio	100	16	*460	*460	480	380
73.	Swan & Finch	100	..	*30	*30	39	28
74.	Vacuum Oil	100	9	*442	*428	445	298
75.	Washington Oil	10	26	*20	*20	32	28
	Miscellaneous Stocks						
76.	Atlantic Lobos Oil	..	..	12	10¼	12	8
77.	Cities Service	100	†21	233	235½	242	158
78.	Cities Service, banker's shares	..	†21	23⅝	23⅝	24⅝	17
79.	Gulf Oil Corporation	100	8	*560	495	570	310
80.	Humble Oil & Refining	100	8	238	235	243	212½
81.	Imperial Oil (Ltd.)	25	12	125	112⅛	126	97⅛
82.	International Petroleum (Ltd.)	..	†25	27¼	22	27½	14
83.	Magnolia Petroleum	100	8	167	167	174	156

*Bid, no sales. †In dollars. ‡6 per cent in cash and 15 per cent stock dividend declared; now being paid in scrip.

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange for May 29 was 59.15, as compared with 57.56 on May 23; 55.90 on May 16; 55.80 on May 9; 56.65 on May 2; 54.25 on April 27; 54.93 on April 20; 54.68 on April 13, and 53.23 on April 6.

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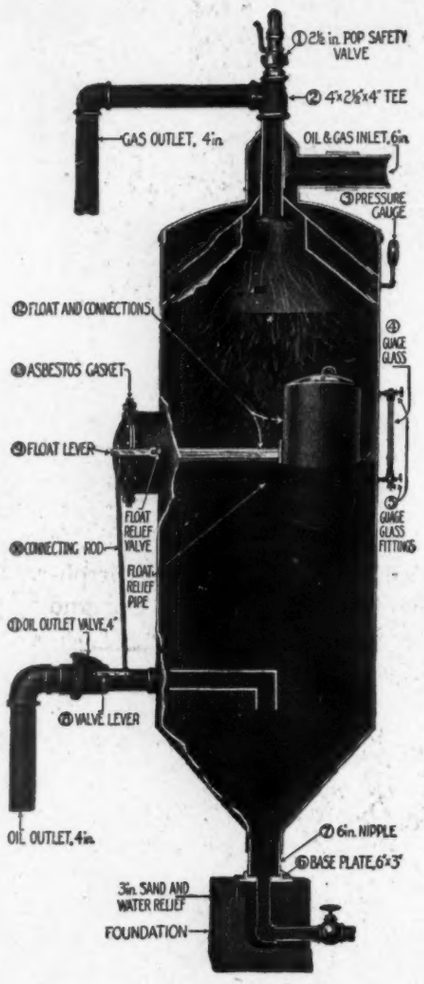

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Gasoline Advance By July 1 In The East?

By N. O. Fanning

New York, May 27.—Gasoline continues to feature the eastern refined oil market. It is reported certain jobbers are asking a higher price in certain up-State districts than the regular quotation of 27 cents, tank wagon, and sentiment is that another general advance of one cent will take place around June 1.

Oil men are not worrying about a gasoline investigation, as they are confident such an inquiry would prove that the law of supply and demand shows higher prices are justified. Gasoline cannot be considered as a product alone, because it has to bear the cost of manufacturing other refined oil products, which are produced from crude oil in conjunction with gasoline. An inquiry into the price of gasoline, oil men believe, would involve nothing less than an inquiry into the price of crude and in fact an investigation of the whole oil industry.

As to the large stocks of gasoline at present, oil refiners believe that before such an investigation could get well under way which would probably be well on into the summer, the situation will have changed radically, and the stocks will have been reduced to the point of actual scarcity.

The recent reduction of 10 per cent in freight rates will make it slightly cheaper to ship refined oil in tank cars from the Mid-Continent to the Atlantic Seaboard, but it will not make enough of a reduction to affect the market in any way.

Present rate is about five cents per gallon, and the 10 per cent cut will make it 4½ cents. There is a great deal of gasoline and lubricating oil now being shipped to the Atlantic Seaboard by some of the big independent marketers in tank cars, especially The Texas Co. and Gulf. Short haul business in the east is not affected by the present rail rate reduction, as the rate on this class of business was cut more than 10 per cent about four months ago by agreement among the eastern roads.

Tank cars are plentiful in the east at present. They can be leased for around $10 and $15 a month, as against an extremely high rate during 1920 of $125 a month. As a rule tank cars are moving freely from the Middlewest to the Atlantic Seaboard. Tank car shipments have made the trip from Chicago and Kansas City to New York recently in four and five days.

Lubricating Oils Firm

Lubricating oils continue firm, prices unchanged. Industrial activity seems to be making steady gains, especially in the steel trade. One of the biggest calls for steel at present is coming from the automobile industry, which is operating at close to maximum. This feature indicates steady expansion in demand for gasoline and lubricants, and is one of the significant "signs" of the times.

The demand for lubricants from the textile district is still unfavorable affected by the strike, but this is being offset by the demand from other sources, including export.

Automobile lubricants are in much better demand, but supplies are still plentiful. Marketers are increasing their barrelage materially on domestic business, but as yet have not asked higher prices. The market has been stationary for almost a year.

Kerosene seems to be a little firmer, but as yet there is very little life in the domestic market. Gas oil is also more active. Wax is firm.

No change is reported in the bunker fuel oil market, but the domestic demand is improving. Fuel oil is more plentiful, if anything, and business is being done below the posted price of $1.20 per barrel (lighterage 6½ cents extra.)

Export Business More Active

Atlantic Seaboard refiners seem to be getting a larger share of the foreign business at present, as a result of the reduction in export kerosene prices about a month ago. Advance in gasoline for export of three cents has not restricted foreign business. In fact the actual movement seems to be steadily increasing. England, France and other large consumers of gasoline during the summer were mostly poorly stocked early in the year. The same is true of lubricating oils. Those foreign purchasers that were waiting for an advance in exchange rates have been rewarded and are now buying freely.

During 1920 many of the big foreign oil consuming countries stocked up with gasoline at extremely low prices way beyond their actual needs. They are now more conservative in their purchases, and the matter of prices is not quite so important an argument as before.

The Price Situation

In the table given below is shown a comparison of prices of crude and refined products and prices of other commodities in April and March, 1922.

The general price tendency of raw and finished products throughout the country is upward. In most of the raw products, April prices showed gains of from 2 to 37 per cent over March, while a few products showed decreases of 1 per cent or less. Crude oil, among other products, remained stationary. The largest advance was shown by coke. The foodstuffs on the whole showed advances, while textiles showed a slightly reactionary tendency. Bituminous coal was the only product outside of crude oil not to show any change whatever.

Among the finished products, gasoline and bunker fuel oil showed substantial gains in April over the previous month (New York prices). The gasoline increase amounted to 12 per cent and fuel oil 21 per cent. Lubricating oil remained unchanged while kerosene declined 7 per cent. Other groups of commodities were mixed. Among the foodstuffs, pork loins advanced 20 per cent, while butter declined 2 per cent and refined sugar remained unchanged. Steel products were generally higher.

Out of the 25 products listed below, 13, or a little more than 50 per cent, showed advances, 7 showed declines and 5 remained unchanged. The advances ranged from 1 to 37 per cent and declines from 7-10 of 1 per cent to 7 per cent. The advances, in addition to being more numerous than the declines, were generally more extensive, and indicated the upward trend of prices at present. In several of the commodities advances are expected in the near future, including crude oil and bituminous coal.

The following table showing March and April prices of commodities, with increase or decrease in per cent, is taken partly from "Commerce Reports" of May 22, 1922:

Product—	March	April	Inc. %
RAW PRODUCTS			
Crude oil, bbl.	$2.25	$2.25	..
Bitum. coal, short ton.	3.60	3.60	..
Coke, short ton.	3.25	4.475	37
Pig iron, long ton.	20.96	22.71	8
Electrolytic copper, lb.	.127	.126	* .7
Crude rubber, lb.	.161	.171	6
Wheat, bu.	1.352	1.386	2
Corn, bu.	.575	.588	2
Hogs, per 100 lbs.	10.338	10.206	* 1
Raw cotton, lb.	.183	.181	* 1
Raw wool, lb.	.25	.248	* .8
Raw silk, lb.	6.027	6.517	8
FINISHED PRODUCTS			
Gasoline, gal.	.24	.27	12
Bunker fuel oil, bbl.	.985	1.20	21
Light filtered cylinder oil, gal.	.38	.38	..
Kerosene, gal.	.14	.13	* 7
Steel billets, long ton.	28.00	29.50	5
Structural steel, long ton	1.45	1.50	3
Worsted yarn, lb.	1.25	1.30	4
Print cloth, yd.	.06	.06	..
Calfskins, lb.	.135	.131	* 3
South pine, per M ft.	40.96	41.35	1
Butter, lb.	.371	.363	* 2
Pork loins, lb.	.198	.236	20
Refined sugar, lb.	.052	.052	..

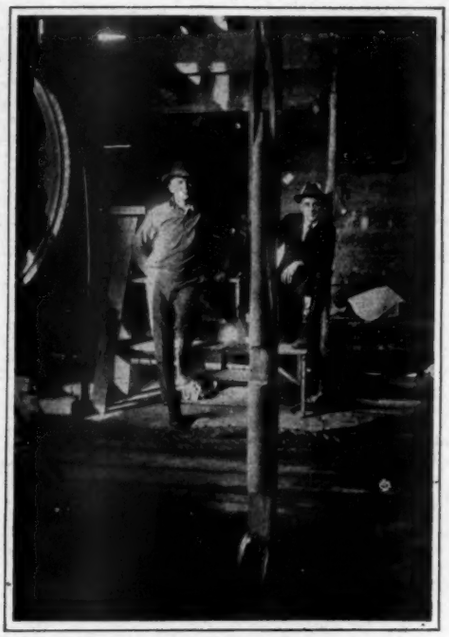
*Decrease.

The item "crude oil" in the above table refers of course to Mid-Continent crude, and is taken from the report issued by the Department of Commerce. Figures for refined oil are the writer's, and are New York prices.

Mexican crude oil seems to be more plentiful than ever but prices are firm. Although the large factors quote 85 cents per barrel, smaller producers will not sell for less than $1.10.

"Impossible to Get Crooked Hole With Spiral Stem"

Says Driller W. V. Delaney



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RATE REDUCTION OF LITTLE BENEFIT

Petroleum Industry Sought Greater Decrease for More Healthy Functioning of Business—Demand for Gasoline Brisk but Supply Hard to Procure—Fuel Oil Situation Improving—Other Chicago Market News.

By JOHN B. WALDO

CHICAGO, May 29.—The announcement of the reduction of freight rates was not received with any spirit of great thankfulness in the petroleum industry. Instead there was a feeling that not enough had been granted in the way of a decreased cost of transportation to really make much difference with the refiners and other branches of the industry.

On the other hand, the railroads bemoan the reduction as if it took every cent of possible profit and are making the reduced revenue that they say is bound to follow this action by the I. C. C. the cause for an immediate reduction of wages. There is one fact about the rate reduction and that is that it looks a good deal larger than it is.

Much of Reduction Now in Force

The new rates are reckoned on the basis of the advanced freight rates established August 27, 1920. Any reduction in the rate made since August, 1920, and previous to the new order which goes into effect July 1, is not counted in the reduction and is in fact as if it had never been made so far as the rates which will apply after July 1 are concerned. The recent reduced rates on agricultural products are just about equal to the new rate so that the agricultural sections will not find the cost of marketing their products any lower.

That this reduction is far less than the petroleum industry indicated at the hearing before the I. C. C. as necessary for the healthy functioning of the industry goes without saying. At the hearing the representatives of the Western Petroleum Refiners Association and the National Petroleum Refiners Association asked for rates in official classification territory which would make them equal to the rates in effect January 1, 1917, plus 40%; in southern and western classification territory, except Pacific Coast, a reduction amounting to local rates—15%, plus a specific reduction of 4½ cents per hundred pounds and for all territories an elimination of the application of any minimum rate for short hauls.

That Gasoline Investigation

It is to be wondered if the Department of Justice or members of Congress at Washington have received so many letters complaining of the advance in gasoline.

The advance in straight run gasoline has not been anything like so spectacular as the increase in price for natural gasoline. The price is not being considered. The largest buyers quote the market the highest but the point is that there is little to be had, as the output of the plants seems to have been sold ahead.

Naturally blends are just a little lower than the straight run goods and they are selling to capacity here. It does not seem to make so much difference what the blends are or who makes them if they are a little cheaper than the regular gasoline there is someone to buy them.

Jobbers Might Finance Operations

There are a lot of big jobbers who are not covered or only partly covered by contracts. They are living in hopes and it may be that some of them will help some of the idle plants to get started. It begins to look like a pretty good proposition for the jobbers to help a refiner in some financial way, if it will give the jobbers in the deal a dependable supply of gasoline. There is really little risk as the crude has an established value. The usual necessity for the refiner with a plant on his hands is to get the crude and it can be had in many cases at a price that will net a profit at present selling prices for refined products. Of course a premium will have to be paid for the crude, but this premium is considered in the estimate of possible profits and some of the statements of what could be done with a plant right now look very attractive. There are some deals on in this way and they suggest a means of relief for the jobber who must have gasoline but does not want to buy a plant.

Fuel Oil Working Higher

There is a distinct improvement in the fuel oil market and it is encouraging the owners of cheap stocks to hold for better prices rather than sell at what they can get to move their product. Of course, the improved demand for gasoline and the rapid improvement of that refined product is making it easier for the refiner to hold for his price for other articles of his regular output. When there was little gasoline and less of any other product moving, something had to be sacrificed and it was the one commodity of which there was the most and which showed the least prospect of improvement. Naturally that was fuel oil, with kerosene next.

Encourage Consumption of Oil

Right now is a time when every producer of fuel oil will do well by the oil industry by encouraging the use of oil as it will result in a saving of coal and do much to secure a final settlement of the recurring strikes in the coal industry which will put that industry on a settled basis. There are thousands of furnaces where fuel oil can be burned to such greater advantage than coal that a sufficient increase in the price for fuel oil over coal to make its production profitable to the refiner can be easily secured.

The demand for gas oil has been less active during the past week. The gas companies are now close to their lowest point of consumption and the levels in their tanks are being lowered less rapidly. There have been no reports of large contracts made by the refiners for gas oil but they are receiving their previous purchases and taking on other amounts from day to day as the situation warrants.

Road oil should be moving rapidly, as the month of June usually sees the spreading of oil under way in all parts but undoubtedly the heavy rains have interferred to some extent with the work. The market is strong here as some of the refiners that produce a good quality of road oil are contracted to the extent of their best possible production. Some of the plants have taken on so much business that if there is any slowing down in the working of the refinery they will have to go out and buy to care for their deliveries. The possibility of cancellations of contracts has been viewed with equanimity but these have been few and for small amounts by comparison. In these cases, there is a possibility of reinstatement as the buyers have asked that deliveries be held back until they find out just how much damage has been caused by the floods, as they might be obliged to divert the money intended for road work to the rebuilding of the levees destroyed this spring.

Kerosene Not So Active

There has been quite a let down to the demand for kerosene during the week and while prices are maintained they are easier. Many of the sellers here attribute this condition to the heavy rains which have prevented the farmers from working their fields and making use of the tractors. Others contend that the buying movement was due to the oil jobbers filling their tanks. The jobbers felt that

The quality must be of the highest if the product is to carry the name—and the price fair.

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(New Jersey).

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Founder The Oil and Gas Journa

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the advance in gasoline might cause an increase in the price of kerosene and that there was bound to be some demand so that the oil jobbers stocked up and have plenty for the present.

There is almost nothing doing here in naphthas as the refiners are using them in their own work. Large amounts are going to the blenders and undoubtedly the cuts are being run to include in the gasoline tank much that woud previously have gone as naphtha. One refiner says that he expects to see the day that the 50-52 gravity will be included in the gasoline as such and not surreptitiously so to speak. He believes that the automobile industry can so improve their engines as to make this possible. At any rate naphtha is a scarce article in this market and only an occasional marketer has any for sale.

Lubricating Oils Active

There is a steady sale of lubricating oils and prices are gradually becoming more firm and a little higher on bright stocks and neutrals. It is asked here when one of the large independent plants in the Mid-Continent Field is going to have its new line of bright stock on the market for the demand is active and prices this week have been advanced from a 28-cent basis to 31 cents and the maker expects to make it 33 cents before the end of another week.

Tank Wagon Prices Steady

There has been no change in the tank wagon prices since the advance of May 8, and there is less rumor of impending changes than for a long time. The reason of this is partly the coming investigation, which many believe will result in deterring advances. The reaction in the earlier part of last week in the gasoline market may also have made it seem that the present was not a good time to ask more for the product. Still it is a matter of uncertainty but which must be considered. It will be remembered that the Standard disclaimed responsibility for the last advance asking that it be made plain that the Sinclair Company was the one that made it. Right now such credit is not a credit mark in certain quarters. There is no doubt that the present margin is very narrow for the jobber.

Chicago News of the Industry

There are to be great doings at the July meeting of the Illinois Independent Oil Jobbers Association. The meeting will be at Galesburg, Ill., July 18. One feature of the day's activities will be a match game of golf between the Kansas City and the Chicago golfers.

The Velvite Oil Co. has been incorporated at Ottawa, Ill., to deal in petroleum products and has a capital stock of $20,000. The incorporators are R. I. Thornton, A. R. Hall and E. R. Wilkinson.

OIL SECURITIES REGAIN LEADING POSITION

(Continued from Page 58)

James Foley, of New York, has sent a letter to stockholders of the Island Oil & Transport Corporation urging the formation of an independent stockholders' committee to protect their rights in the company, which is in the hands of a receiver.

Financial Statements

The annual report of the Pure Oil Co. for the year ended March 31, 1922, shows net income after interest, depreciation, depletion and inventory adjustments of $515,739, equivalent to $2.57 earned on the $20,000,000 preferred stock. This compares with net income of $8,636,050, equivalent after preferred dividends to $4 per share earned on the $49,392,600 common stock (par $25) in 1921.

The consolidated income account of the Pure Oil Co. for the year ended March 31, 1922, compares with 1921 as follows:

	1922	1921
Gross earnings	$60,722,417	$72,977,460
Expenses, costs, etc.	51,779,290	58,976,239
Net oper. earnings	$8,943,127	$14,001,221
Federal taxes	.....	1,652,905
Inventory adjustment	1,376,056	.....
Interest, etc.	957,100	987,569
Depreciation	3,019,244	2,724,697
Depletion	3,174,988	.....
Net income	$515,739	$8,636,050
Preferred dividends	1,231,180	735,622
Common dividends	4,024,940	4,662,500
Deficit	$4,810,381	*$3,237,928

*Surplus.

The consolidated balance sheet of the Pure Oil Co. as of March 31, 1922, compares as follows:

ASSETS	1922	1921
Property, plant and equipment	$98,876,552	$101,811,872
Other investments	16,519,016	11,007,474
Stock in treasury	316,000	997,900
Cash	4,434,281	2,679,800
Marketable securities	7,168,136	394,724
Accounts receivable	4,621,308	4,238,734
Notes receivable	687,272	398,429
Stocks of crude and refined oil	10,189,299	10,550,939
Materials and sundries	2,016,521	2,541,975
Deferred charges	1,149,170	1,208,185
Total	$145,977,555	$135,830,042
LIABILITIES		
Common stock	$52,882,625	$49,392,600
Preferred stock	20,000,000	14,869,800
Moore Oil preferred	300,000	600,000
Funded debt	11,059,000	13,069,000
Accounts payable	2,234,859	1,299,113
Notes payable	11,565,360	1,300,000
Accrued taxes	384,030	2,240,203
Accrued interest	259,689	266,395
Consumers' deposits	286,440	286,080
Insurance reserve	91,080	55,093
Surplus	46,414,482	52,151,758
Total	$145,977,555	$135,830,042

President Dawes, of the Pure Oil Co., states in the annual report that during the year $7,000,000 was invested in the stock of the Humphreys Oil Co., $4,000,000 in stocks of the Humphreys Pure Oil Pipe Line Co. and Humphreys Pure Oil Refineries Corporation, and $4,339,852 in capital expenditures, principally in the producing, refining and distributing divisions and in the shares of other underlying and affiliated companies.

Net earnings of the Sinclair Consolidated Oil Corporation have been improving each month during 1922. The company is now in a position to pay dividends, according to E. W. Sinclair, president.

Gross earnings of the Cities Service Co. in April were $1,377,836, compared with $1,425,203 in April, 1921. Net earnings amounted to $1,338,250, after expenses.

Dividends and Meetings

The Humphreys Oil Co. has declared an initial dividend of 5 per cent payable June 15 to stockholders of record May 31. Three new directors have been elected to represent the interest of the Pure Oil Co., which owns 25 per cent of the stock of the Humphreys Co. They are B. G. Dawes, president of the Pure Oil Co.; I. W. McIlvain, vice president, and W. D. Fairbanks, a director.

The South Penn Oil Co. has declared the regular quarterly dividend of 1½ per cent, payable June 30 to stock of record June 12.

The Cities Service Co. has declared the regular monthly dividends of one-half of 1 per cent each on the common, preferred and preferred "B" stock, all payable in script and 1¼ per cent common stock dividend on the common stock, payable in common script, all payable July 1 to stock of record June 15.

At the annual meeting of the stockholders of the Standard Oil Co. of New York, retiring directors were re-elected. Peter M. Speer, who was recently appointed general counsel, was elected a director to succeed Martin Carey, deceased. Howard E. Cole was elected a vice president to succeed Mr. Carey. C. M. Higgins was elected secretary.

Standard Oil Co. of Kentucky has declared a quarterly dividend of $1 per share on the $25 par value stock, payable July 1 to stockholders of record June 15. This is at the rate of 16 per cent per year, against an annual rate of 21 per cent paid on the old stock.

The Ohio Oil Co. has declared the regular quarterly dividend of $1.25 per share and an extra dividend of 75 cents per share, both payable June 30 to stockholders of record May 31.

Southwest Pennsylvania Pipe Lines Co. declared the regular quarterly dividend of $1 per share, payable July 1 to stockholders of record June 15.

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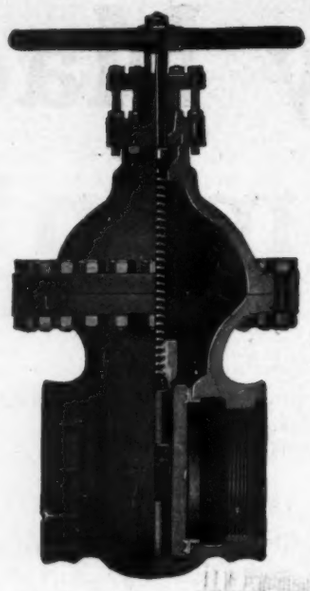

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MAY FIELD SUMMARIES

(Continued from Page 48)

showed 142 completions, 6,365 bbls. of new daily production, 35 dry holes and 5 gas wells. Although there were four less completions than in April, there was an increase of 1,449 bbls. for May.

The counties that showed increases were Butler, Marion, Chautauqua-Elk, Greenwood - Woodson, and miscellaneous counties. The increase in the latter counties was again due to Anderson County, where the Colony Field has become an important producing territory and shows 21 completions for the month, aggregating 869 bbls. There were also three small wells in Cowley County.

The increase in production in Butler County was due to the Fox-Rush Field, which supplied some big wells, the largest of the month being the Lewis Oil Co.'s No. 3 Bunnell, Section 26-28-5, which started at 600 bbls. Greenwood County was very active, one of the big wells of the month being in the pool recently opened by Jones & Roth, whose No. 3 Thrall, Section 32-23-10, started at 350 bbls. In the same district, Section 7-22-13, the Minnehoma Oil Co. got a 110-bbl. well..

The counties compare in new daily production for the two months as follows: Butler, May 3,475 bbls., April 2,510 bbls.; Marion, May 800 bbls., April 540 bbls.; Chautauqua-Elk, May 260 bbls., April 90 bbls.; Greenwood-Woodson, May 2,056 bbls., April 1,929 bbls.; Montgomery-Wilson, May 40 bbls., April 142 bbls.; Neosho-Allen, May 134 bbls., April 228 bbls.; Miami-Franklin-Douglas, May 0, April 100 bbls.; Miscellaneous counties, May 959 bbls., April 826 bbls.

New work in the State fell off by 21 operations as compared to April. May's report shows 84 rigs, 212 drilling wells, with a total of 296 operations. In April there were 93 rigs, 224 drilling wells, with a total of 317 new operations. Marion County had a net loss of 6 new operations and miscellaneous 13.

NORTH CENTRAL TEXAS

Summary of Completed Work

District—	Comp.	Prod.	Dry	Gas
Wichita	43	3,992	9	0
Burkburnett	15	485	3	0
Eastland	21	9,795	3	0
Stephens	40	13,660	11	0
Young	25	3,364	2	3
Wildcats	17	2,287	5	0
Total, May	161	33,583	33	3
Total, April	137	16,388	39	0
Difference	24	17,195	6	3

Summary of New Work

District—	Rigs	Dig.	Ttl.
Wichita	19	89	108
Burkburnett	3	27	30
Eastland	39	83	122
Stephens	28	187	215
Young	16	65	81
Wildcats	32	72	104
Total, May	137	523	660
Total, April	131	497	628
Difference	6	26	32

There were 161 wells completed in the North Central Texas fields in the period covered by the April monthly oil report. The initial daily production was 33,583 bbls.; dry holes 33, and gas wells 3. In March there were 137 completions; 16,388 bbls. new production; 39 dry holes, and no gas wells. This indicates a gain in April of 24 in completed wells; a gain of 17,195 bbls. in initial daily production; 6 fewer dry holes and 3 more gas wells. The greatest gain was in Stephens County, which in March showed a total initial production from new wells of 7,405 bbls., while in April the new production aggregated 13,660 bbls. Other counties in the field showed the following comparative results: Wichita in March 1,658 bbls.; April 3,992 bbls.; Burkburnett, in March, 618 bbls., April 485 bbls.; Eastland County in March, 1,365 bbls., April 9,795 bbls.; Young County in March 5,138 bbls., April 3,364 bbls. The wildcat districts in March 204 bbls., April 2,287 bbls. In new work there was an increase. The rigs at the close of April numbered 137 and the wells drilling 523, a total of 660, while at the close of the March report the rigs were 131 in number and the drilling wells 497, a total of 628, showing a gain of 6 in rigs and 26 in drilling wells, a total of 32.

LOUISIANA-ARKANSAS

Summary of May Operations

District—	Comp.	Prod.	Dry	Gas	Rigs	Dig.	Ttl.
Bellevue	15	1,845	3	0	6	19	25
Caddo	8	716	0	0	8	45	53
De Soto	0	0	0	0	4	12	16
El Dorado	45	5,635	4	2	80	104	184
Haynesville	99	35,430	4	0	88	182	270
Red River	1	0	1	0	0	1	1
La. Wildcats	5	194	1	2	8	56	64
Ark. Wildcats	0	0	0	0	10	57	67
Total, May	173	43,820	13	4	204	476	680
Total, April	200	69,748	18	6	220	498	718
Difference	27	25,928	5	2	16	22	38

A summary of operations in the North Louisiana and South Arkansas fields for the month ending May 25, shows that with only 27 less wells completed this month there was a decrease of 25,928 bbls. in the initial production. The Haynesville Field has undoubtedly passed its flush production period but with the new extension west the report for the coming month should be more encouraging. Only one failure in the proven district of this field was completed during the month, the remaining three being wildcats north and southwest of the proven area. The El Dorado Pool reported only 4 failures out of the 45 completed wells, but the initial production shows a steep decline. The Bellevue Field made a rather poor showing this month with three failures out of 15 completions and the production coming to but 1,845 bbls. A decrease of 22 in the number of drilling wells brings the total down to 476 including all districts, with 204 rigs. The completion of a producing well two miles northwest of the El Dorado proven field and a second about a quarter of a mile west of the Haynesville producing area gives promise of increased drilling activity the coming month.

GULF COAST

Summary of Field Operations

District—	Comp.	Prod.	Dry	Rigs	Dig.	Ttl.
Anse La Bute	1	0	1	0	3	3
Batson	1	0	0	0	3	3
Barber Hill	4	0	4	4	4	8
Blue Ridge	4	4,050	2	0	5	5
Dayton	2	0	2	0	5	5
Damon Mound	4	125	3	1	9	10
Goose Creek	9	530	6	3	19	22
Humble	3	450	0	1	10	11
Hull	5	13,250	1	4	16	20
Jennings	1	1	0	0	3	3
Orange	33	12,925	11	26	44	70
Pierce Junction	10	1,500	8	1	13	14
Spindletop	2	10	1	0	2	2
Saratoga	3	10	2	0	0	0
Sour Lake	10	480	0	0	7	7
Somerset	6	30	0	20	18	38
Vinton	5	150	1	0	9	9
West Columbia	8	4,160	2	6	23	29
Miscellaneous	17	3,330	9	71	235	306
Total, May	138	41,020	53	117	428	545
Total, April	130	76,708	47	160	425	585
Difference	8	35,688	6	43	3	40

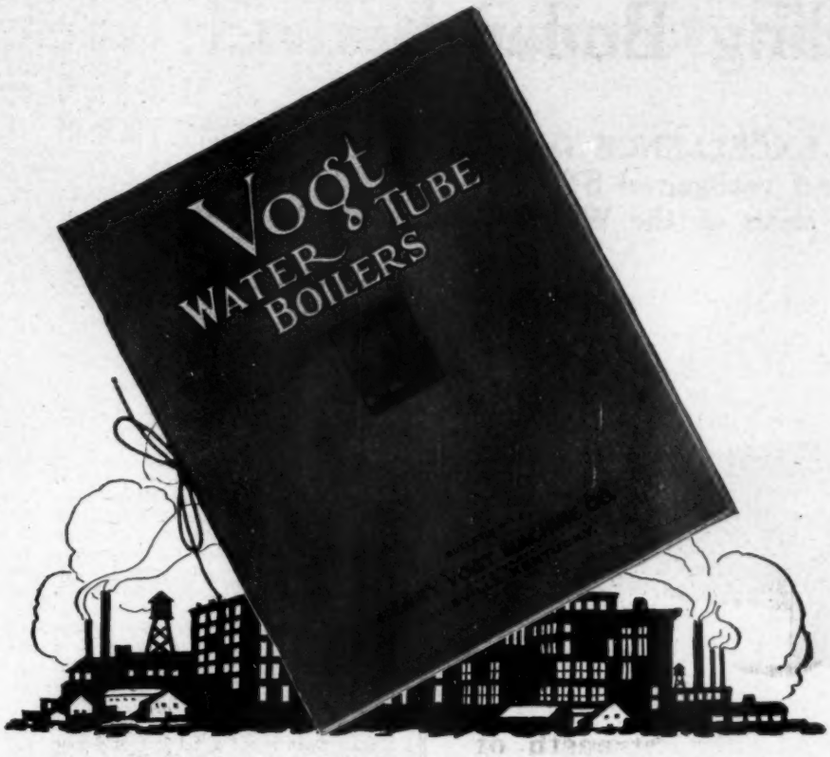
Gas wells: 1 in Batson, 1 in Goose Creek, 1 in Hull, 1 in Pierce Junction; total, 4, a loss of 5 compared with April.

New production in the Gulf Coast division fell off 35,688 bbls. from the April figures, the total for May being 41,020 bbls. compared with 76,708 bbls. during the month previous. Completions number 138, an increase of eight over April, while the dry holes and salt water wells increased 6, from 47 to 53.

During May the dome at Stratton Ridge, Brazoria County, was placed in the producing column with a 1,500-bbl. well that has since sanded. A shallow sand pumper was developed at High Island, Galveston County, and the fact that the new district seven miles south of Richmond, Fort Bend County, is a salt dome was definitely determined by drilling into 20 feet of that formation at 751 feet.

The greatest loss in new production was in the new Orange Pool, where it dropped from 41,650 bbls. in April to 12,925 bbls. in May. The West Columbia Pool also shows a decrease compared with last month. High water is partly responsible for these reductions. The north side of the dome at Hull supplied two big wells and gives promise of more to offset the decline in the Orange district.

Credit balances for Orange production advanced 25 cents late in the month and $1.25 is now posted for that district.



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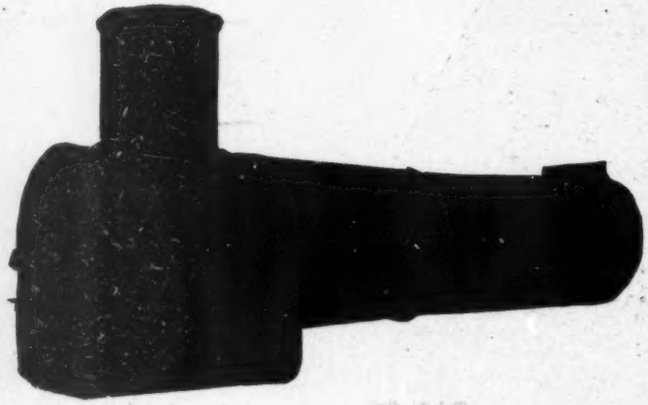

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ROCKY MOUNTAIN FIELD

WYOMING

Summary of Field Operations

District—	Comp.	Prod.	Dry	Rigs	Dig.	Ttl.
Big Muddy	1	150	0	2	18	20
Salt Creek	31	14,000	1	111	105	216
Lance Creek	2	300	0	2	6	9
Warm Springs and Thermopolis	2	210	0	3	27	30
Big Horn Basin	1	15	0	6	31	37
Lost Soldier and Carbon County	2	0	0	25	56	81
Rock River and Medicine Bow	4	555	1	13	45	58
Fremont County	0	0	0	22	35	57
Mule Creek	0	0	0	3	16	19
Osage	4	60	0	8	29	37
Natrona County	0	0	0	8	18	26
Lincoln County	0	0	0	2	20	22
Miscellaneous	0	0	0	16	59	75
Total, May	47	15,620	2	232	465	687
Total, April	40	9,822	3	230	464	694
Difference	7	5,798	1	8	1	7

MONTANA

Summary of Field Operations

District—	Comp.	Prod.	Dry	Rigs	Dig.	Ttl.
Cat Creek	0	0	0	3	34	37
Miscellaneous	2	0	2	6	107	113
Total, May	2	0	2	9	141	150
Total, April	3	300	1	8	141	149
Difference	1	300	1	1	0	1

UTAH

Summary of Field Operations

	Comp.	Prod.	Dry	Rigs	Dig.	Ttl.
Miscellaneous	0	0	0	0	31	31
Total, May	0	0	0	0	27	27
Total, April	0	0	0	0	31	31
Total, April	0	0	0	0	4	4

Forty-seven wells were completed in the Wyoming fields in the period covered by the May review of operations. The new production was 15,620 bbls.; dry holes 2 and gas wells none. In April the completions numbered 40, the initial daily production 9,822 bbls.; dry holes 3. This shows a gain of 7 in wells completed; a gain of 5,798 bbls. in new production; and one less dry hole. There was a slight falling off in the total of new work, there having been 222 rigs up and 465 wells drilling, a total of 687 at the close of the May report, and 230 rigs up and 464 wells drilling, a total of 694 at the close of the April report, or 8 fewer rigs and 1 more well drilling, a net falling off of 7 in May.

The Montana summary shows 2 wells completed in May, both of which were dry as compared with 3 completions in April with initial production of 300 bbls. At the close of the May report there were 9 rigs up and 141 wells drilling, a total of 150. While at the close of the April report there were 8 rigs and 141 wells drilling, a gain of 1 rig.

Utah was at a standstill. No wells were completed in May or in April. There were 27 wells classified as drilling at the close of May, while the April report showed 31 wells similarly classified, indicating the abandonment of 4 tests.

Salt Creek led in the result of completed work. Thirty-one wells were credited with initial production of 14,000 bbls.

LIMA

Summary of Field Operations

	Comp.	Prod.	Dry	Rigs	Dig.	Ttl.
Wood	10	253	0	3	14	17
Hancock	7	120	0	1	12	13
Allen	4	65	0	0	6	6
Auglaize	3	85	1	1	25	26
Sandusky	3	16	0	0	2	2
Mercer	1	5	0	1	2	3
Seneca	1	10	0	0	1	1
Van Wert	0	0	0	1	11	12
Lucas	0	0	0	0	0	0
Ottawa	5	22	0	0	2	2
Darke	1	2	0	0	1	1
Hardin	2	7	0	0	1	1
Henry	0	0	0	0	2	2
Logan	0	0	0	0	1	1
Michigan	1	0	0	1	0	1
Total, May	37	585	1	8	61	69
Total, April	21	149	8	4	53	57
Difference	16	436	7	4	8	12

During May in the Lima Field there were 37 wells completed, with one dry hole and a new production of 585 bbls. When compared with the April figures, this shows an increase in completed wells of 16, with an increase of 436 bbls. in new production and 7 less dry holes. There were 20 old wells abandoned during the month.

At the close of May there were 8 rigs up and 61 wells drilling, for a total of 69, while the close of April showed 4 rigs and 53 wells drilling, for a total of 57, an increase for May of 12.

CENTRAL OHIO

Summary of May Work

	Comp.	Prod.	Dry	Gas	Rigs	Dig.	Ttl.
Licking	1	0	1	0	0	2	2
Fairfield	2	0	0	2	0	3	3
Knox	36	113	2	9	10	17	27
Ashland	0	0	0	0	4	3	7
Medina	6	3	2	3	13	18	31
Lorain	0	0	0	0	1	6	7
Wayne	2	10	1	0	8	8	16
Richland	0	0	0	0	0	1	1
Vinton	1	0	0	1	0	3	3
Perry	3	0	3	0	0	0	0
Hocking	0	0	0	0	4	6	10
Holmes	5	0	1	4	10	14	24
Jackson	1	0	0	1	2	4	6
Coshocton	0	0	0	0	1	0	1
Athens	3	0	1	1	1	2	3
Meigs	0	0	0	0	0	2	2
Huron	1	0	0	1	0	0	0
Total, May	60	126	11	22	54	89	143
Total, April	64	170	15	30	47	60	107
Difference	4	44	4	8	7	29	36

During May there were 60 wells completed in Central Ohio of which 27 were oil wells with an initial production of 126 bbls., 11 were dry holes and 22 were gas wells. When compared with the April figures this shows a decrease of 4 in completed wells, 44 bbls. in new production and 4 less dry holes, while in gas wells there was an increase of 8. In new work under way at the close of May, there were 54 rigs up and 89 wells drilling, against 47 rigs and 60 drilling wells at the close of April, a net gain in new work of 36.

According to reports it looks as though a new pool had been opened up in Miflin Township, Ashland, County, formerly reported in Miflin Township, Richland County. The well is owned by Harmon & Sweeney, well-known oil men of Mansfield, and the Berea sand was found at 465 feet. The well will be equipped for pumping at once and is estimated as showing for from 3 to 5 bbls. The fact that the well shows a shallow pay sand is enough to cause much excitement.

ILLINOIS

Summary of Completed Wells

	Comp.	Prod.	Dry
Clark	1	8	0
Crawford	6	31	3
Lawrence	2	28	0
Marion	22	209	6
Clinton	2	0	2
Jefferson	1	0	1
Washington	4	0	4
Total, May	38	276	15
Total, April	14	563	3
Difference	24	287	12

Summary of New Work

	Rigs	Dig.	Ttl.
Clark	2	6	8
Cumberland	0	3	3
Crawford	0	3	3
Lawrence	0	0	0
Marion	0	5	5
Monroe	0	3	3
Clay	0	1	1
Washington	0	2	2
Jefferson	0	0	0
Montgomery	0	1	1
Alexander	0	1	1
Jackson	0	1	1
Madison	0	1	1
Total, May	2	27	29
Total, April	2	33	35
Difference	0	6	6

During May a total of 38 wells were completed in Illinois, with a new production of 276 bbls., and 15 dry holes, and when compared with the April figures show an increase of 24 in completed wells and 12 more dry holes, and in production the May figures show a decrease of 287 bbls.

In new work under way at the close of May there were 2 rigs up and 27 wells drilling against 2 rigs and 33 wells drilling at the close of April, a decrease net of 6 in new work under way.

INDIANA

Summary of Field Operations

	Comp.	Prod.	Dry	Rigs	Dig.	Ttl.
Jay	2	93	0	0	6	6
Adams	0	0	0	0	0	0
Huntington	1	25	0	0	0	0
Delaware	2	13	0	0	2	2
Randolph	1	65	0	0	2	2
Gibson	1	25	0	0	7	7
Pike	6	63	2	0	5	5
Sullivan	1	0	1	0	2	2
Marion	0	0	0	0	0	0
Warrick	0	0	0	0	0	0
Miami	0	0	0	0	0	0
Knox	1	43	0	0	0	0
Grant	0	0	0	0	2	2
Wabash	0	0	0	0	2	2
Knox	0	0	0	0	2	2
Total, May	15	327	4	0	30	30
Total, April	15	193	5	3	26	29
Difference	0	134	1	0	4	1

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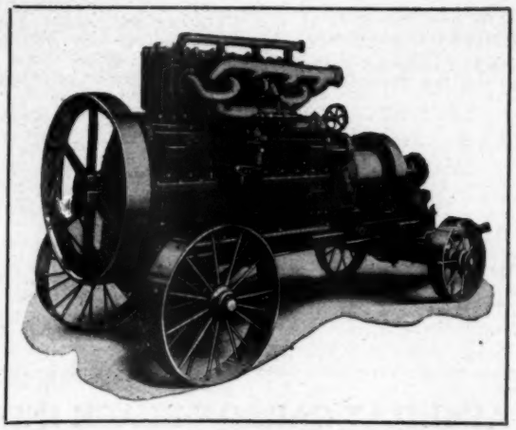

A contracting firm in the Bradford, Pennsylvania, field is drilling in sixteen to seventeen hundred-foot territory, finishing these wells in eight to ten days with gas bills as low as $10 per well.

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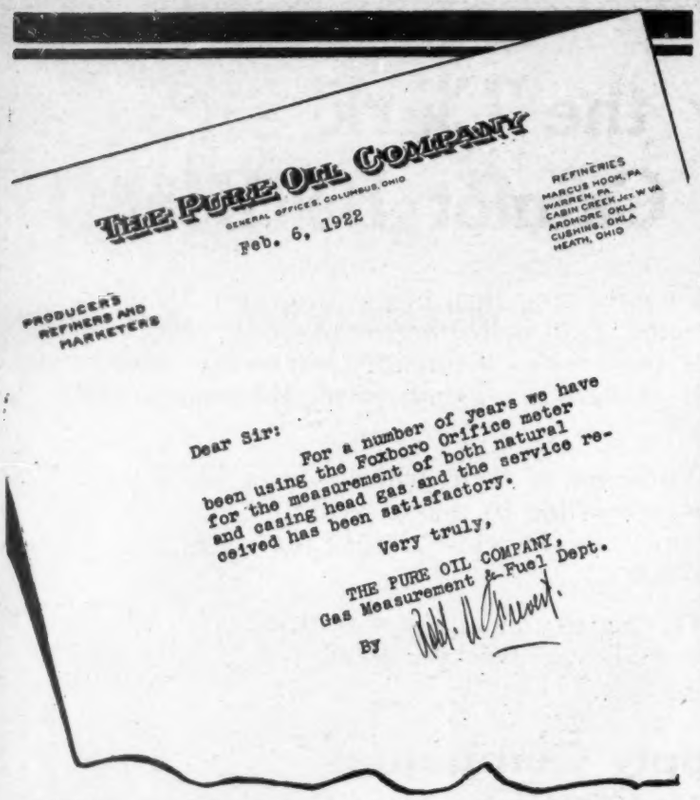

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Only slight changes are noticeable in the Indiana fields during May and those of April, there being the same number of wells completed which was 15 for each month. The May production was 327 bbls. against 193 bbls. for April, a gain of 135 bbls., while the dry holes for May number 4 and April 5, a decrease of one.

In new work under way at the close of May there were 30 rigs and drilling wells and at the close of April there were 29, which is a net increase of but one, which is encouraging to some extent, for weather conditions were bad almost the entire month.

KENTUCKY-TENNESSEE

Summary of Completed Wells

	Comp.	Prod.	Dry	Gas	Rigs	Dlg.	Ttl.
Wayne	1	0	1	0	0	34	34
McCreary	1	10	0	0	0	1	1
Wolfe	3	0	3	0	0	3	3
Estill	1	15	0	0	0	2	2
Lee	3	15	0	0	0	3	2
Lawrence	3	28	0	0	2	16	18
Allen	54	609	5	0	0	31	31
Warren	58	1,240	5	1	0	64	64
Barren	19	60	8	6	0	28	28
Simpson	9	280	4	1	0	12	12
Logan	1	0	1	0	0	5	5
Johnson-Magoffin	36	445	1	1	12	53	65
Cumberland	1	100	0	0	0	24	24
Edmonson	2	10	0	0	0	3	3
Lewis	1	0	0	1	0	0	0
Adair	2	0	0	2	0	0	0
Calloway	1	0	1	0	0	0	0
Floyd	1	8	0	0	0	1	1
Russell	1	0	1	1	0	2	2
Hancock	0	0	0	0	0	9	9
Metcalf	0	0	0	0	0	4	4
Breckenridge	0	0	0	0	0	3	3
Christian	0	0	0	0	0	2	2
Monroe	0	0	0	0	0	1	1
Clinton	0	0	0	0	0	6	6
McLean	0	0	0	0	0	5	5
Daviess	0	0	0	0	0	1	1
Green	0	0	0	0	0	1	1
Henderson	0	0	0	0	0	3	3
Knott	0	0	0	0	2	2	4
Elliott	0	0	0	0	0	1	1
Fulton	0	0	0	0	0	2	2
Caldwell	0	0	0	0	0	1	1
Whitley	0	0	0	0	0	2	2
Crittenden	0	0	0	0	0	1	1
Marion	0	0	0	0	0	1	1
Taylor	0	0	0	0	0	2	2
Tennessee	0	0	0	0	0	20	20
Total, May	198	2,820	30	13	16	351	367
Total, April	232	4,525	53	7	14	363	377
Difference	34	1,705	23	6	2	12	10

During May, a total of 198 wells were completed in the Kentucky-Tennessee fields, with 30 dry holes, 13 gas wells and a new production of 2,820 bbls. These when compared with the April figures show a decrease in completed wells of 34, 1,705 bbls. less production, 23 less dry holes, while in gas wells there is an increase of 7, due to the wells being drilled for gas in Glasgow and the immediate surroundings, which is located in Barren County.

In new work under way at the close of May there were 16 rigs up and 351 wells drilling, while the close of April showed 14 rigs and 363 drilling wells, which is an increase of 2 in rigs and a decrease of 12 in drilling wells, a net increase of 10.

BILL AIMED AT CARBON BLACK INDUSTRY

Louisiana Legislature Considering It—Powerful Lobby Working to Kill It—Interests that Would Build a Gas Line from Monroe to New Orleans Threaten to Quit if Carbon Black Men Are Not Curbed.

By M. L. Vaughn

Shreveport, La., May 29.—One of the most important issues to be decided during the present session of the State Legislature is the final attitude of the State in relation to the carbon black industry. A powerful lobby has been formed by the carbon black interests and it is believed that the fight which is developing may result in a demand for a legislative investigation of the past and present activities connected with this industry.

The fight will be based on a bill introduced in the Senate by Senator E. Wayles Browne of Caddo, prohibiting the waste of natural gas or the burning of natural gas in any manner that does not utilize the heat for domestic purposes or manufacturing purposes other than the making of carbon black and which is aimed directly at the carbon black industry. This bill as introduced is almost a verbatim copy of the Wyoming bill of 1919.

As the Wyoming law has been sustained by the Federal Supreme Court, the carbon black interests have no hope of defeating it in the courts and are concentrating all their efforts to prevent the passage of the bill by the Legislature.

Strong financial interests which have plans well under way for piping the gas from the Monroe Field to New Orleans, a project which will cost millions of dollars, are said to have stated that the pipe line will not be built until they are assured that the Legislature will curb the carbon black plants and conserve the gas for domestic and industrial consumption.

Ben K. Stroud and Frank T. Payne, engineers of the Conservation Department of Louisiana, in a report recently presented to the Legislature, recommended the elimination of the carbon black factories from the Monroe Field and the construction of pipe line systems.

Sixty-five percent of the total volume of natural gas used for carbon-making purposes in the United States during the year 1921 was practically all supplied by one field in the State of Louisiana—the Monroe district, according to the 1921 report of the U. S. Geological Survey on the carbon black industry, just received here.

The total volume of natural gas burned for carbon in the United States during 1921, the report states, was 49,431,855,000 cubic feet, of which Louisiana contributed 32,101,800,000 cubic feet, or 65 per cent of the total, and all other states, five in number, supplied only 17,330,055,000 cubic feet, or 35 per cent.

Of the total number of pounds of carbon produced from this gas, according to the government record, 31,034,000 pounds came from Louisiana gas, or 53 per cent, while 27,698,700 pounds came from the gas utilized in other states, or 47 per cent, the grand total of carbon black production for the United States being 58,632,700 pounds, the greatest in the history of the carbon black manufacturing industry.

These government records, therefore, ranks Louisiana first as a carbon black producing state, supplanting West Virginia, which previously held the first place.

The U. S. Geological Survey reports show further that 24 states in the United States produce natural gas in commercial quantities. Out of these 24 states, only six are recorded in the carbon black producing list, these being Louisiana, West Virginia, Pennsylvania, Kentucky, Wyoming and Montana. Out of these six states, the report shows, one field (Monroe), in one state (Louisiana), contributed 65 per cent of all gas utilized for carbon-making purposes in the United States during 1921, and local records indicate that more carbon plants are being built so that the record will be continued if not surpassed in the year 1922.

ARRANGE FOR GAS SERVICE

Casper, Wyo., May 26.—Miles City and Terry, Mont., will soon be enjoying the benefits of natural gas service, according to reports reaching here from Joliet, Ill., which states the Northwest Public Utilities Co., of Joliet, will pipe the gas from the Baker-Glendive Field. It is stated it will require an outlay of about $1,500,000 to finance the proposition.

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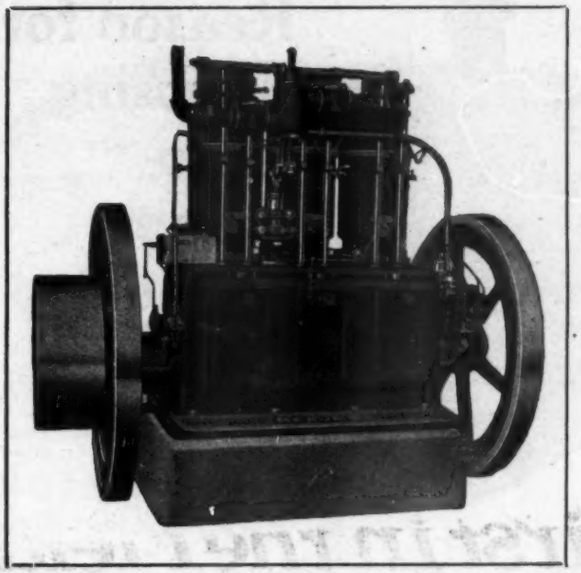

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Natural Gas Developments

LEWISTOWN MAY GET GAS

LEWISTOWN, Mont., May 26.—Lewistown is beginning to have dreams of using natural gas for domestic and industrial consumption. The California Co.'s No. 1 well on the Armell structure, 30 miles north of here, seems to be drilling itself in. When the gas sand was first tapped, at about 1,250 feet, and the well shut down to wait for orders, the open flow was estimated at about 2,000,000 cubic feet. The flow has since been increasing until it is estimated that it is now making 10,000,000 cubic feet. Application has already been made for a franchise to pipe the gas to Lewistown.

Kansas Natural Gas Case Taken Under Advisement

KANSAS CITY, Mo., May 27. — The question of the jurisdiction of the Public Utilities Commission of Kansas over the Kansas Natural Gas Co. was taken under advisement by Judge John C. Pollock, of the Federal Court in Kansas City, Kans.

The question was brought up by an intervening petition filed by A. E. Helm, attorney for the Kansas Public Utilities Commission, in the injunction suit brought by the Consumers' Light, Heat & Power Co., of Topeka, Kans., to restrain the Kansas Natural Gas Co. from shutting off its supply of gas if it failed to pay the 5-cent increase demanded.

A similar injunction suit, instituted by the Kansas City Gas Co., in the Federal Court in Kansas City, Mo., against the Kansas Natural Gas Co., will not be heard by Judge Pollock, the attorneys on both sides agreed yesterday. The issues involved being practically the same as those heard yesterday, it had been agreed previously that the case should be heard by Judge Pollock instead of Judge Arba S. VanValkenburgh.

Although the decision by Judge Pollock in the case taken under advisement will not directly bear upon the Kansas City, Mo., case, it is expected to influence it considerably. In both cases the respective State Utilities Commissions allege that they have power to regulate the natural gas company and that before it can increase its rates arbitrarily the consent of the Utilities Commissions is necessary.

"I realize that unless the Public Utilities Commission can regulate the gas producing company," Judge Pollock said yesterday, "its power of regulating the distributing companies, which is conceded here, is practically worthless.

Is Interstate Concern

"But on the other hand the Kansas Natural Gas Co. is admittedly an interstate concern and the regulation of its rates and business by one State Utilities Commission may affect the people in the other States supplied."

The public, Judge Pollock, added, was not aware of the difficulties that arise in fixing a just rate which a producing company may charge. The precarious supply of gas and the costs of building pipe lines and pumping the gas through the mains are not understood by the general public, he declared.

"If natural gas companies are to live," he said, "they must be given enough to pay for the costs of their business. No reasonable man would think of putting even good counterfeit money into a producing company now. I must consider this case along these lines."

Should Judge Pollock hold that the Kansas Public Utilities Commission has not jurisdiction over the Kansas Natural Gas Co. the case now before the court will be tried out on its merits. The Topeka Co. has raised the question of the reasonableness of the 5-cent increase asked of the distributing companies. If it is decided that the Utilities Commission may regulate the producing company, then the latter will have to apply to it for an increase.

Judge Van Valkenburgh will be asked today or sometime next week to set a date for the hearing of the Kansas City Gas Co.'s case at as early a date as possible. One reason why it was first agreed that both cases should be heard by Judge Pollock was because of Judge Van Valkenburgh's inability to set an early date.

Gas And Other Utilities Subject Of League Action

BOWIE, Tex., May 29.—A solution of the perplexing problem of regulating natural gas rates and the character of franchises may result from a committee of nine members of the League of Texas Municipalities. This is the view of Mayor J. W. Chancellor, of Bowie, who was a member of a committee of the league that, during a recent annual session of the organization at Waxahachie, Tex., prepared a resolution providing for appointment of the committee of nine. Mayor Chancellor was active last year in the litigation affecting the North Texas Gas Co. and the Lone Star Gas Co., and he has prepared a bill he proposes to have introduced in the legislature relating to public utilities.

The resolution provides that five members of the committee of nine shall be lawyers and the other four members either mayors or city managers. The committee is authorized: To examine into the state of each city in Texas; to investigate the powers of such cities to regulate rates and to determine the kind of service to be rendered by public utilities to the public.

"To investigate the powers of cities to grant binding obligations involving the fare or rate to be charged by public utilities and the character and kind of franchises to be granted.

"To investigate and report thereon the expediency and necessity of providing for a State regulatory board or to suggest such other means and methods that may be deemed proper to grant relief to the cities of Texas, and, further, to present adequate measures for submission to the Legislature.

"That such committee shall report to the president of the league within 90 days with a copy of its recommendations, exhibiting all facts and the status of the law with reference to the questions involved."

This is the most comprehensive task ever undertaken by the league in Texas. Its authority covers all classes of public utilities. The necessity is said to exist in the lack of uniformity of statutes on the subject.

Mayor Chancellor suggested to the league members a bill that would put the utility that renders inter-city service under the Railroad Commission and would authorize municipalities to regulate local utilities. He emphatically opposed representatives of public utilities taking any part in legislative matters.

"In the writing of a utility bill in the future," he says, "no representative of any utility should be consulted, no attorney for any railroad, electric light, telephone, telegraph or other public utility should be placed in a position to dictate the policies of the State in writing this legislation. I would say further that the people of the State, and of the Nation, are jeopardizing their interests when they elect attorneys or other representatives of utilities to the Legislature or to Congress."

Mayor E. R. Cockrell, of Fort Worth, the new president of the league, has not yet announced the personnel of the committee of nine.

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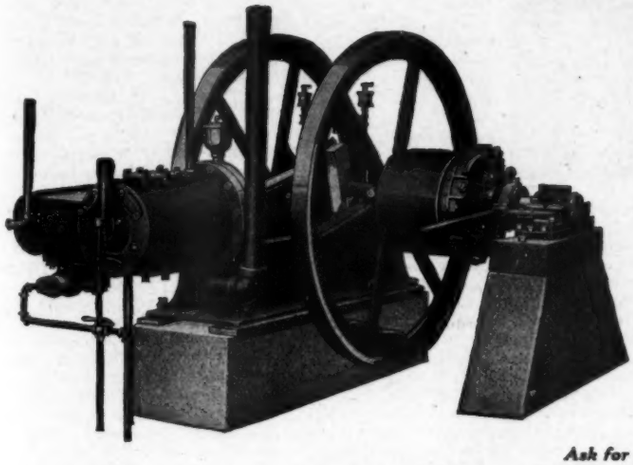

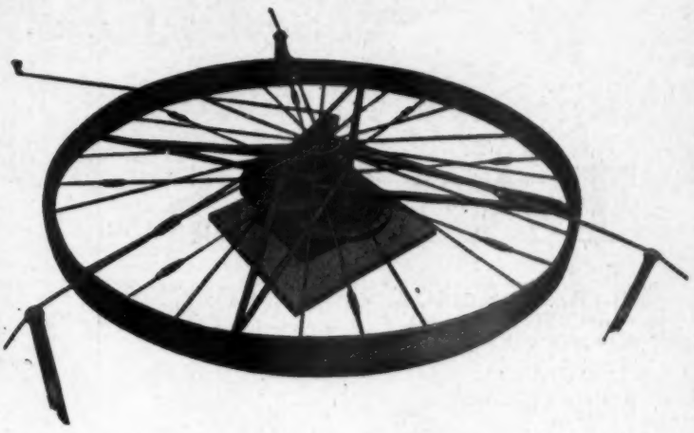

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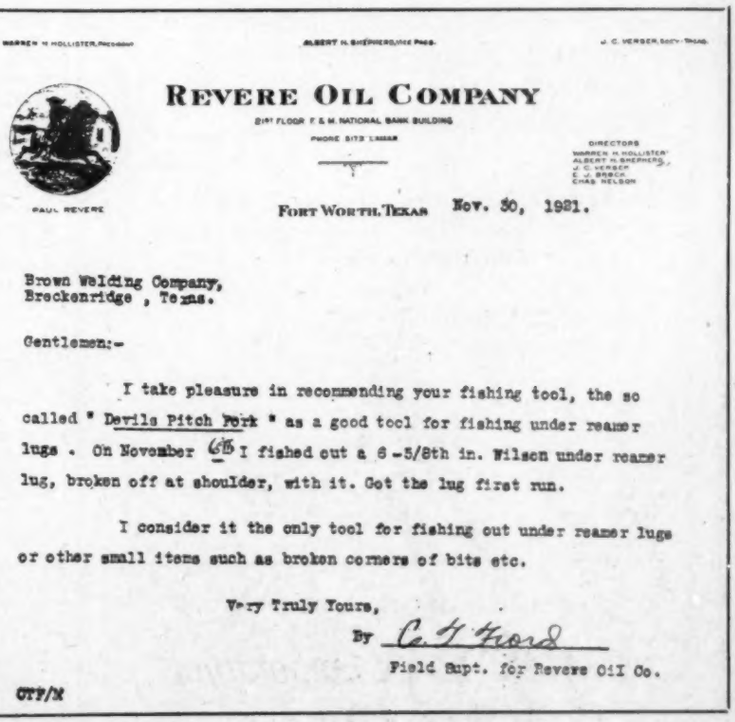

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By C. H. Ford

Field Supt. for Revere Oil Co.

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7

OIL TRANSPORTATION RATES REDUCED

In Connection With Interstate Commerce Commission Decision, Shippers Have Agreed on Plan Contemplating Reductions and Readjustments of Practically All Petroleum Rates—Details of Decision and Classification of Rates.

By Charles E. Kern

WASHINGTON, D. C., May 27.—In connection with the reduction in freight rates generally by the Interstate Commerce Commission, the commission says in its decision that shippers of petroleum throughout the country have agreed upon a plan contemplating reductions in and readjustments of practically all petroleum rates. Freight rates were cut generally 10 per cent, effective July 1, the reduction in the eastern territory being fixed at 14 per cent, at 13½ per cent in western territory and 12½ per cent in the southern and mountain Pacific territories.

In speaking of the business of the railroads in transporting petroleum and its products, the commission says in its decision:

"Rail lines are not obtaining as great a proportion of the total movement as they did in former years. This is due chiefly to the rapid development and increased use of other forms of transportation, notably pipe lines, motor trucks, tank vessels, and accessorial storage facilities. While transportation by these other forms of carriage is undoubtedly in many cases more economical than by rail, and while rail lines may not expect to retain the entire traffic, use of the other forms of transportation is enhanced by the existing level of rail rates. The increases in many short-haul rates over the 1917 basis are now from 5 to 6.5 cents per 100 pounds, which in themselves would be high rates in many cases. Many short-haul rates are materially higher than on other commodities of like transportation characteristics. The rail lines are losing some short-haul traffic which they might retain at lower but still remunerative rates. Self-interest would seem to dictate revision by them of their short-haul rates."

Plan of Shippers

During the hearings in these cases known as "in the matter of rates, fares and charges of carriers by railroad subject to the interstate commerce act" it was stated traffic agents of the railroads had recommended to the presidents of the roads that reductions in rates on petroleum and its products should be made from the Mid-Continent to points on the eastern seaboard to place the Mid-Continent refiners on a parity with the Atlantic seaboard refiners who received their crude by water so that the oil industry will not be surprised that this agreement has become effective through the decision of the commission. However, the area affected by the readjustment is greater than was indicated at that time.

The plan agreed upon by shippers of petroleum throughout the country contemplate reductions in and readjustments of practically all petroleum rates on the following basis:

1. In official classification territory. Readjustment to rates of January 1, 1917, plus 40 per cent.

2. In New England, 4.5 cents per 100 pounds.

3. Between trunk line territory and New England, 4.5 cents per 100 pounds with 90 per cent of fifth class as a minimum.

4. Between Central Freight Association territory and New England. Readjustment to basis of 2 cents per 100 pounds over the New York rates. (No. 1 above).

5. Southern and western classification territories except Pacific Coast. (1) Local rates—15 per cent plus a specific reduction of 4.5 cents per 100 pounds. (2) Proportional rates—15 per cent plus 2 to 2.5 cents per 100 pounds whichever was authorized in freight rate authority No. 96.

6. Pacific Coast territory. 15 per cent, plus specific reduction of 4.5 cents per 100 pounds.

7. All territories. Application of any minimum rate for short hauls eliminated.

Referring to the above readjustments as agreed to by the shippers, the commission says:

Rail Movement Lessened

"It is not necessary to discuss this plan in detail. Little specific information was presented relative to its effect upon existing rate structures or the revenues of the carriers. Evidently important changes in relationships and decrease in revenue would result from its adoption, unless accompanied by an increase in tonnage hardly to be anticipated. In official classification territory the reduction would be about 30 per cent and carry the rate rate level below that obtaining immediately prior to August, 1920. The rates could be made effective only by recomputing all existing rates and reissuing the schedules. This would take much time.

"The percentage increase of 1920, coupled with the subsequent reduction of 3.5 cents in central territory, has tended to lessen the rail movement of refined products and fuel oil from southwestern refineries to northern and eastern markets and to increase the movement of crude oil by pipe line from southwestern producing territory to northern refineries, and also to Gulf Coast refineries from which the movement is by water to North Atlantic ports and thence by short rail hauls into the interior. As a result the southwestern refineries are suffering while other refineries are operating more nearly to capacity.

"This situation appears to clearly fall within the class of readjustments contemplated when the increases of 1920 were authorized. Carriers should promptly revise their rates from the Southwest to the eastern group in order to lessen the spread as compared with rates between points in central and trunk-line territories. This should not be construed as requiring re-establishment of the precise differences which existed immediately prior to the increases of 1920."

Less Crude Carried

In commenting upon the conditions of the petroleum industry and of the railroads which has led up to these readjustments of petroleum freight rates, the commission says:

"In the United States 469,639,000 bbls. of crude oil were produced in 1921, an increase of 5.9 per cent over 1920, and 125,000,000 bbls. were imported from Mexico. The crude oil refined in 1921 aggregated 443,000,000 bbls., an increase of 2.2 per cent over 1920, and the total amount of gasoline, kerosene, fuel, gas, and lubricating oils shipped was 405,204,000 bbls., an increase of approximately 1 per cent.

"Exhibits introduced by shippers indicated that the crude oil moved by rail in 1921 was 25 per cent less than in 1920, and that in 1921 only 6.6 per cent of the crude oil received at refineries came by rail as compared with 9.9 per cent in 1920. According to reports of carriers on file the tons of crude oil originated on Class I carriers in 1920 were 6,435,074, and in 1921, 5,044,513

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tons, or 22 per cent less. According to shippers, the number of carloads of petroleum products shipped by rail in 1921 was 735,000, or 8.5 per cent less than in 1920. The number of tons of petroleum products originated on Class I carriers as appearing in their reports was 29,615,954 in the year 1920 and 27,216,185 tons in 1921, a decrease of 8 per cent.

"Fuel oil, gasoline, and other petroleum products are important elements of cost in mining, agriculture, and industry, being used as fuel or motive power for mine machinery, irrigating plants, tractors, and trucks. Petroleum loads heavily, moves in large volume with little loss or damage, and shippers usually furnish the tank cars. They say that their compensation from the carriers for use of the cars is less than cost. The carriers pay at the same mileage rate on empty as on loaded cars, and the movement empty is practically 100 per cent of the loaded movement.

Former Adjustments

"In August, 1918, at the solicitation of the petroleum industry, the Director General of Railroads substituted a flat increase of 4.5 cents per 100 pounds in all carload rates on petroleum and its products for the 25 per cent increase prepreviously applied under his General Order No. 28. This resulted in comparatively small percentage increases in long-haul rates, but the percentage increases in short-haul rates were greater than on commodities generally and in many cases ranged from 100 to 200 per cent. Shippers stated that as a result most short-haul rates upon petroleum, especially upon crude and fuel oil, are greatly out of proportion to the cost of transportation.

"Petroleum and its products are consumed generally throughout the country, but the greatest consumption is in the States east of the Mississippi and north of the Ohio and Potomac Rivers. At one time most of the refineries were located in the eastern group. In recent years many refineries have been constructed in the Southwest and at Atlantic, Gulf, and Pacific Coast points. In 1921 there were approximately 250 refineries in the Southwest, of which 130 were shut down. Less than 50 per cent of the total capacity of the interior southwestern refineries was in operation during that year, but refineries on the Gulf Coast and east of the Mississippi River were operated to approximately 85 per cent of capacity. Some of the southwestern refineries appear to be of inferior construction, but nothing of record indicates that, capacity considered, most of them are not as efficient in operation and equipment as refineries generally.

Disadvantages to Tulsa

"Shippers urged that the greater extent to which interior southwestern refineries were idle in 1921 was due to the percentage increases in rail rates on petroleum products from these refineries to northern and eastern markets, which had widened the spread in transportation charges to the disadvantage of southwestern refiners. For example, the rates from Tulsa, Okla., and Wood River, Ill., to Cleveland, Ohio, prior to the increase of 1920 were 45 cents and 25 cents, respectively, a difference against Tulsa of 20 cents. That increase resulted in rates of 62 and 35 cents, respectively, increasing the difference to 27 cents. The record indicates that although more than 55 per cent of the crude petroleum produced in the United States in 1921 came from wells in the Southwest, less than 20 per cent of the total crude produced was refined by the interior refineries in that region; and that, of the crude produced in the Southwest, 57 per cent moved either by pipe lines to refineries elsewhere, or by pipe lines and tank vessels to Atlantic ports, thus depriving the rail lines of much revenue. Shippers say that such readjustments as the carriers have made since August, 1920, instead of lessening the burden placed upon the southwestern refineries by the percentage increases, have augmented that disadvantage to the extent of 3.5 cents per 100 pounds, the amount of a flat reduction in rates between points in central territory and from central to trunk-line territory. Following that reduction the advantage to Wood River over Tulsa in reaching Cleveland became 30.5 cents."

As Favorable as Expected

The action of the commission was fully as favorable to the shippers generally as was expected by many of those who have studied the rate case while it has been in progress. The reduction to 5¾ instead of 6 per cent of the aggregate value of the railroad property of carriers determined as constituting a fair return thereon on and after March 1, 1922, is a very positive concession to the shippers generally, as the representatives of the carriers were inclined to believe that the increase in interest rates would at least preserve the amount of interest they would be allowed to earn on the value of their property.

Specifically, the commission holds that freight rates and charges have been found unreasonable on and after July 1, 1922, to the extent that they may exceed the rates in effect August 25, 1920, by specific percentages.

The commission explains that in "Increased Rates 1920" they exercised the discretion conferred upon them and then to the 5½ per cent return added the one-half of 1 per cent during the two-year period to make provision for improvements, betterments, or equipment. Since August, 1920, they say the carriers as a whole or as a whole in their respective rate groups, have failed by a considerable margin to earn the authorized return. It is urged by some, they say, that under existing conditions the question of a fair return for the future is academic and that it is not necessary for them to determine a percentage of return at this time. However, they do not take that view. The operation of economic facts which have prevented or which may hereafter prevent carriers from earning a fair return under the adjustment of rates then prevailing, they say, constitute a bar to determination of what a fair return should be. Because the yield on some railroad bonds has declined to something over 5 per cent, they say it does not follow that a fair return should approximate that percentage. Railroads in the future would have to do a great deal of financing for new construction and it would be necessary to provide for them properly in the return they could offer investors.

Refiners Association Accomplishing Things

The Western Petroleum Refiners Association has met with success in its new policy of dealing directly with the carriers, instead of waiting for results from a formal complaint with the Interstate Commerce Commission.

Harry Birmingham, traffic manager, of the association, asked the Rock Island some weeks ago for better freight rates to Oklahoma, notably to the refineries located in Group 3, with arbitraries.

Secretary John D. Reynolds of the association writes that "It is pleasing to note that the carriers have indicated a willingness to co-operate under the new policy by a spirit of 'give and take' in disputed and mooted questions over readjustments of railroad rates on petroleum products. The traffic department has several other proposed reductions pending with the railroads, and similar action is anticipated."

The towns added to Group 3, formerly on an arbitrary basis:

Carter No. 3, Carter No. 1, Healdton, Lone Grove, Magnolia Spur, Prairie Spur, Pure Oil Spur, Ringling Spur, Ringling Junction, Sand Pit and Gates Spur, all on the Oklahoma, New Mexico & Pacific; Addington, Junction City, Lawton, Temple, Walters, Waurika, Wilson and Comanche, on the Rock Island; Chickasha, Cyril and Lawton on the Frisco.

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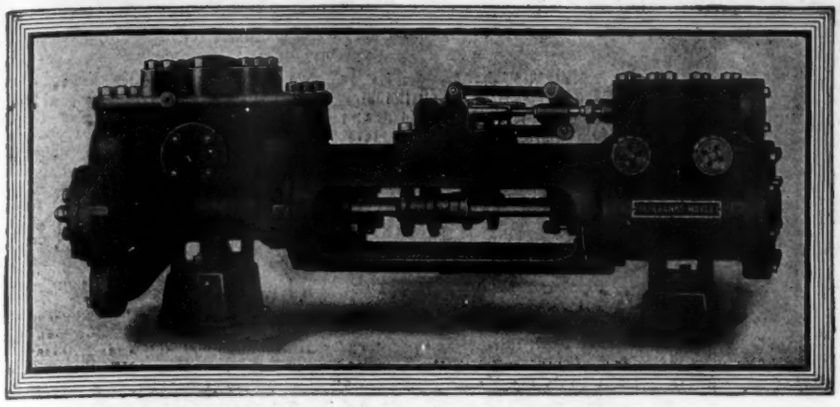

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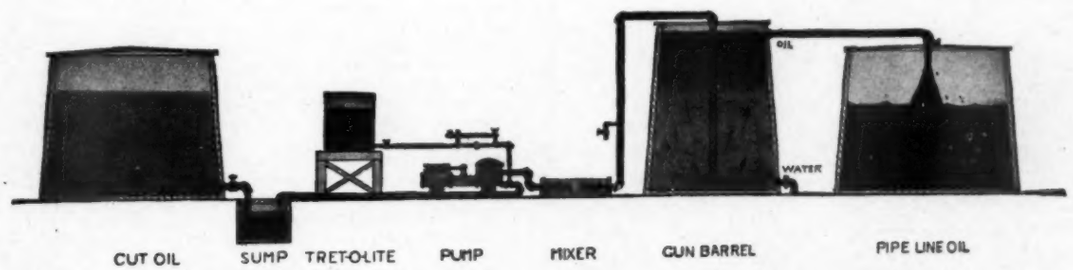

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URQUHART'S VIEWS ON RUSSIAN FIELDS

Chairman of the Russo-Asiatic Co. Denies that British Companies Are Trying to Get a Monopolistic Hold by Means of Negotiations With the Soviet Government—Importance of Russian Fields Over-Played

By A. E. Burgess

LONDON, May 20.—The tamosphere at Genoa regarding the Russian oil industry continues clouded, and contradictory statements are everywhere to be heard. There is, perhaps, no one more fully qualified to judge the real position than Mr. Leslie Urquhart, Chairman of the Russo-Asiatic Co., who was called to Genoa for consultation on Russian affairs, and the following views of his seem, at the moment, to set out the facts of the case clearly and accurately, although by the time this letter reaches you the situation may have materially changed. "Having just returned from Genoa," says Mr. Urquhart, "I know the harm that was done by the great oil canard. Directly it was put about that a British company was negotiating and had actually concluded a monopolistic agreement with the Soviet Government to work all the Russian oil fields, our French and Belgian friends took alarm and began to suspect that we might be bargaining behind their backs."

"Of course," continued Mr. Urquhart, "we were doing nothing of the kind. The whole tale was a pure invention. It was no wilder than a good many other equally baseless fabrications that have been flying about that city of many rumors; but it achieved a much wider circulation; it was believed in quarters that should have been the first to see through its absurdity, and it wrought very real damage by casting doubt on our good faith at one of the most critical moments of the Russian negotiations. I do not know how the legend arose, but I am confident that the Shell company was not responsible for it. My understanding is that the Directors of that great concern have for some time past been in touch with the Soviet Government with a view to re-establishing their rights to their pre-war properties and also to clearing up and confirming the position in regard to some further oil concessions in Russia on which they took up an option about 15 months ago. These negotiations did not originate at Genoa, nor were they continued there. On the contrary, I am informed that the Shell Directors very properly suspended their private dealings with the Soviet rulers until the upshot of the International Conference should be known. They had voluntarily decided to stand down in order to avoid even the appearance of compromising the Prime Minister's position; and it hardly needed, therefore, their emphatic disclaimer to make one feel quite sure that they had nothing whatever to do with the ridiculous, but very injurious hoax that was played on the Conference.

"The only people who gained, or seemed to gain, anything by it, were M. Tchitcherin and his colleagues. They were placed in the delightful position of having it appear as though Russia possessed some prodigious wealth of oil for access to which all the rest of the world was greedily contending. This suited their book to a nicety, and even if they were not the authors of the fairy tale they naturally did nothing to discourage its circulation.

"To anyone who knew the real facts of the Russian oil situation it was an amusing comedy. Half my life has been spent in the oil industry in Russia, and I have kept in pretty close touch with its recent developments. It will be enough to mention a very few figures in order to form an idea as to whether Russia, from the standpoint of oil development, is likely to be a tempting proposition during the next few years. The production of the Baku Field was at the rate of about 7,000,000 tons per annum for 14 years previous to 1918, when, with the coming of civil war and the Soviet regime, it dropped violently to under 3,000,000 tons, at which figure it has since remained. In 1917 there were, roughly, 3,700 wells working in the Baku Field; today there are fewer than 800. The production at Grosny had remained stationary for many years at about 1,000,000 and 1,200,000 tons per annum. Since 1918 it has not been more than 1,000,000 tons. Since 1917 the average yearly footage of new drilling has not exceeded 25,000, or about one-thirteenth of the pre-war performance. From this certain conclusions evidently follow:

"1. The Russian oil fields are not in a position to export any oil abroad.

"2. To restore production even to the low level of 1917 five years of leeway in the drilling of new wells will have to be made up.

"3. This will require an outlay which cannot, I think, be put at less than £20,000,000 in the aggregate, apart from the heavy expenditure required to reinstate the properties in their former working conditions.

"4. Even if the 1917 level of production is reached, the improvement in Russian transport and industries will absorb the entire yield. For many years to come Russia will be an importer and not an exporter of oil.

"It is clear, therefore, that those who desire to resume their old oil properties in Russia and to restore them to their former efficiency must be prepared to meet some very stiff bills, while the case of those who are hoping to develop new concessions under present conditions must be even more hazardous. Meanwhile, any idea that Russia for another decade at least will have a single drop of oil to spare to export to other lands may as well be given up at once."

Another aspect of the situation, taken from the Paris "L'Information" is supplied by "The Manchester Guardian" as follows:

The Soviet Government would be ready to consider a proposal in virtue of which the sale of all the oil products available for export from the various deposits in Russia should be entrusted to a syndicate formed on the following basis:

The initial capital of the syndicate will be constituted in equal parts by the Russian Government and the foreign group. The direction of the syndicate will have control of the whole of the "sales" branch, and will be confided to a council in which the foreign group and the Russian Soviet Government will be represented in equal proportions.

The syndicate will give an undertaking to the Russian Government to effect the sale of the oil products under the best possible conditions. In order to make this sale more advantageous the syndicate will have to furnish or acquire in the future an adequate organization of distribution, which may necessitate a certain expenditure. The capital necessary for this purpose could be furnished by the issue of bonds, the interest on which would be guaranteed by the foreign group.

The syndicate would receive as remuneration for its activity a certain commission on all the sales. This commission will be calculated on a basis varying according to the quantities sold.

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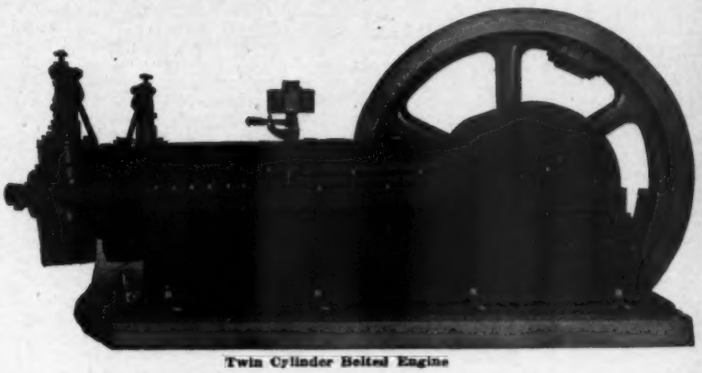

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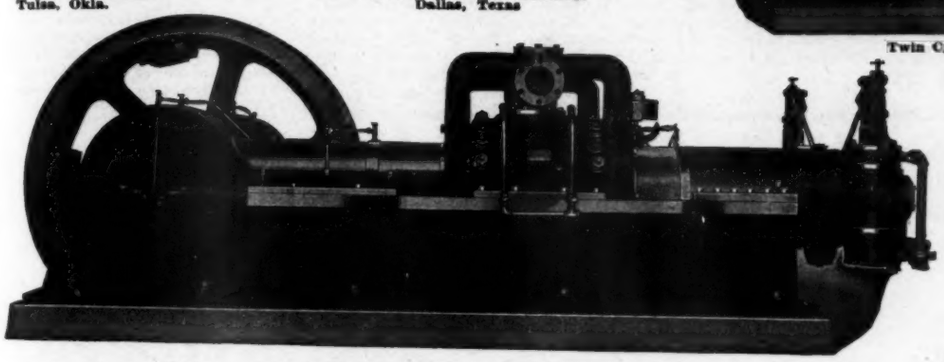

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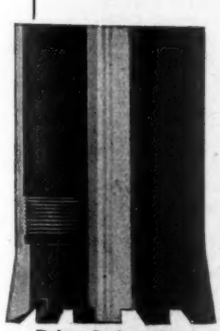

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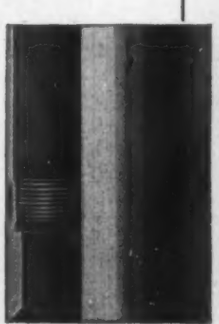


Texas Pattern Shoe

General Offices: 6300 Maple Ave., St. Louis, Mo.

Factories: Bartlesville, Okla., St. Louis, Mo.

tities exceeding this figure the proportion could be fixed by mutual agreement. It is further agreed that the returns on sales realized by the syndicate at a price higher than the American export price will belong entirely to the syndicate. After deduction of all general expenses, the returns thus realized shall be applied in the first place to the payment of the bonds, if the syndicate has issued any; the balance shall be shared in equal parts between the two groups forming the syndicate, that is to say, the Russian Government and the foreign group. These arrangements shall be concluded for a period of five years; after this period the Russian Government will have the right to pay off the bonds issued, if any, at the price of issue or on any other conditions which may be stipulated at the moment of issue, and to bring the agreement to an end. The Russian Government will have to give a year's notice at the end of the fourth year if it should desire to bring the agreement to an end. In default of such notice, the agreement will be *ipso facto* renewed for a fresh period of one year.

It is agreed that the Russian Government will have the right at any moment to effect sales of oil products direct to foreign Governments, but these sales shall not in any case exceed 50 per cent of the quantities available for export. The success of the syndicate will at first depend principally upon the facilities available for bringing the existing stocks of petrol to the different ports of loading. At present these facilities are unfortunately insufficient; with a view to remedying this situation the foreign group of the syndicate will have to be prepared to expend upon transport a sum of at least $500,000 sterling. This sum, together with the others mentioned below, will be guaranteed by the Russian Government, and if possible by the stocks of Russian oil. This money shall be devoted to the purchase of the necessary rolling stock to the maintenance of the pipe lines, and, if necessary, to the establishment of fresh pipe lines for the various products. In respect of sums thus expended, bonds, called transport bonds, shall be issued, carrying interest at 8 per cent. In addition, these bonds shall be entitled to a bonus, the total amount of which shall be determined by the quantity of oil products transported in excess of a certain amount to be fixed.

The value of this bonus may be fixed by mutual agreement and shall take the form of a royalty on every pood of oil products transported in Russia in excess of a certain quantity. The payment of the interest on these bonds shall be guaranteed by the Russian Government and, if necessary, by the stocks of petrol existing. The transport system thus formed by the new rolling stock to be bought, and by that now existing, shall be placed under the direction of a Council comprising in equal numbers delegates of the Russian Government and of the foreign group. The president of this Council shall be nominated by the Russian Government. The rolling stock, together with all the properties of the common enterprise, shall not be liable to requisition either by the Central Government or by the local authorities.

The directorate of the enterprise shall have the right to import skilled labor from abroad, and in general to administer and direct the enterprise in the best way to secure the object to be pursued and the interests to be realized.

Every fresh increase of capital which may be necessary shall be furnished by the Russian Government and the foreign group.

This increase of capital shall again take the form of the issue of bonds at a rate of interest to be fixed mutually at the moment of issue, the Russian Government being responsible for the subscription of one moiety of the issue and the foreign group for the other moiety. These bonds shall similarly be entitled to a bonus on the same conditions as the bonds mentioned above.

The activity of the directorate of the joint enterprise in Russia shall be subject to all the decrees and laws of the Russian Federative Socialist Republic and to all the regulations in force. The total of the employes of the syndicate in Russia shall not comprise more than 50 per cent of foreign employes.

If an agreement on these bases is possible, the foreign group shall have the right to send its representatives to Russia in order to examine the conditions of transport and to take samples of the stocks existing.

After a period of 10 years, the Russian Government shall be free to pay off the said transport bonds at the price of issue and on all other conditions stipulated at the moment of issue. It is agreed that these conditions shall include certain repayment premiums calculated on the mean profits of the last two years of the exploitation of the joint enterprise. The Russian Government shall give notice of the repayment within a period which shall not extend beyond the end of the ninth year.

Below will be found an article from the pen of an exceptionally well-informed correspondent which should throw additional light on the present Russian oil situation. The article in question has just been issued by a leading firm of stockbrokers in London:

The attention of the business world is today focussed on Russia.

Numerous and great are the problems before the Genoa Conference, but the problem before it is the re-entry of Russia into the International economic system. Russia offers a large field for foreign investors and a practically unlimited market for foreign goods.

What can Russia give? She can quickly produce wealth and its equivalent for the world's assistance, and that equivalent is oil. The fight for the oil—one of the most insistent problems of the present day—is now carried into Russia. Before the 1917 revolution Russia was not quite accessible in that respect. The Russians themselves were organizing the oil industry and could carry it on with their own means. Even then considerable foreign capital was invested in the Russian industry, though the percentage was small as compared with the total amount invested in the industry. But now Russia has no capital to invest, and the oil industry, which can and will quickly recover, badly wants foreign capital. That capital will come, but which country will send it?

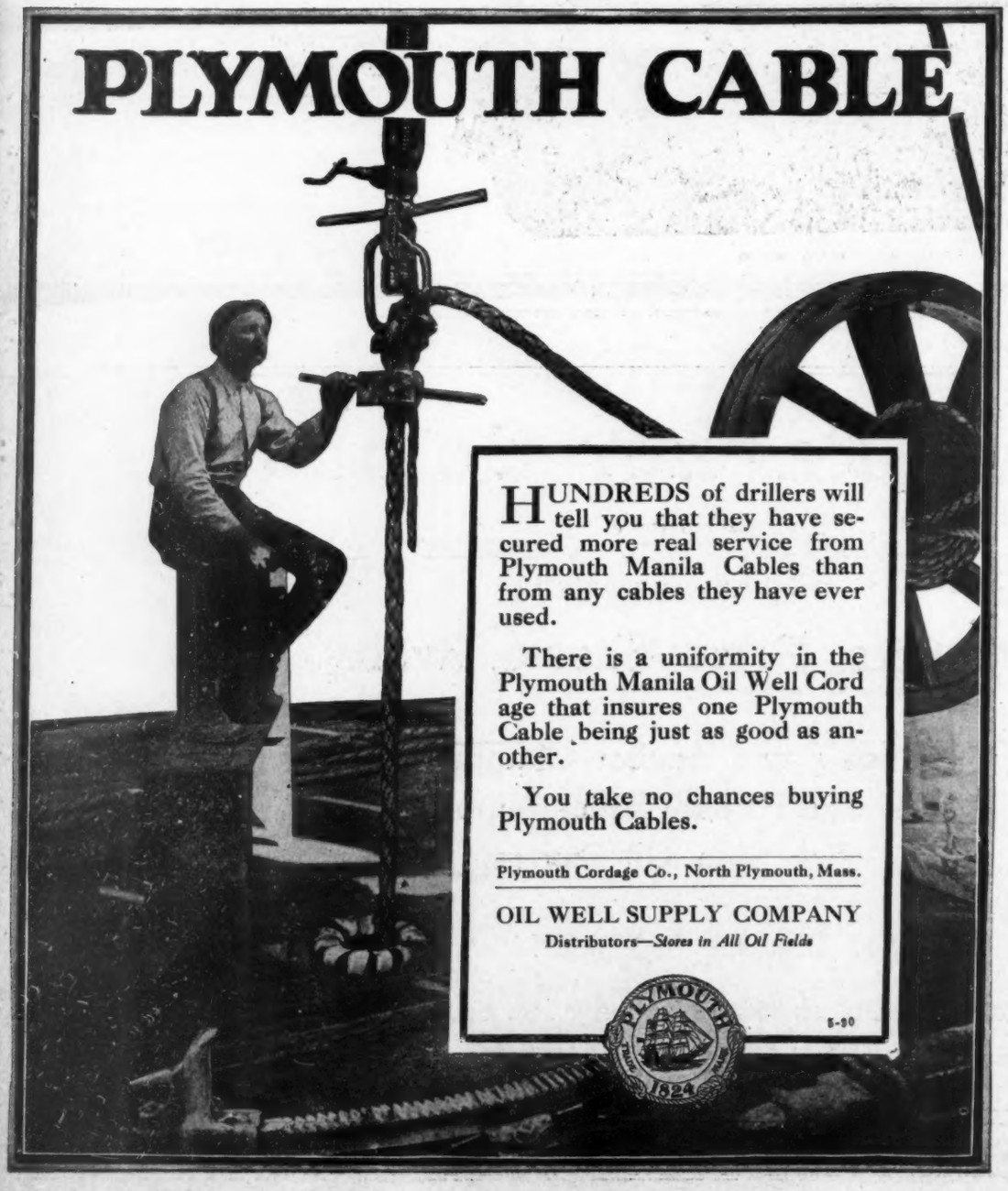
Until 1903, Russia was leading among the oil-producing countries of the world. Then the United States of America overtook her. Two reasons can explain that victory, viz. (1) the right organization of the American trade and (2) the mistaken policy of the Czarist Government which limited the opportunities for oil production. The Russian State owned about 80 per cent of the oil-bearing lands, and for the last 25 years has both withheld the granting of new concessions and increased the royalties payable to the State. Such royalties averaged 45 per cent of the output, and went up as high as 70 per cent in certain cases. Such policy did not encourage production, and accordingly Russia lost her second place in the oil-producing world in favor of Mexico. But Russian oil, in comparison with Mexican, is of a very high quality. It contains an unusually large percentage of the most valuable oil distillates—benzine, kerosene, lubricating oils, etc. In the present state of the oil trade generally, this fact adds very considerably to the value of the Russian fields.

In the middle of 1920, the Russian oil fields were declared nationalized by the Soviet authorities. As is well known, the chief oil fields of Russia are situated on the Apsheron Peninsula (Baku) and in Grozny. The effect of nationalization on the oil industry will be seen from the following figures:

The Output in Baku

	*Poods
1913	427,100,000
1914	424,100,000
1915	460,600,000
1916	476,900,000

* 62 poods = 1 ton.


PLYMOUTH CABLE
HUNDREDS of drillers will tell you that they have secured more real service from Plymouth Manila Cables than from any cables they have ever used.
There is a uniformity in the Plymouth Manila Oil Well Cord age that insures one Plymouth Cable being just as good as another.
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Distributors—Stores in All Oil Fields
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The word "Republic" is rolled in every length of pipe manufactured by this company. It is the identifying mark that distinguishes "just pipe" from "Republic pipe."

Thousands upon thousands of tons of Republic pipe are shipped into American oil fields each year to help cope with big operations and heavy production.

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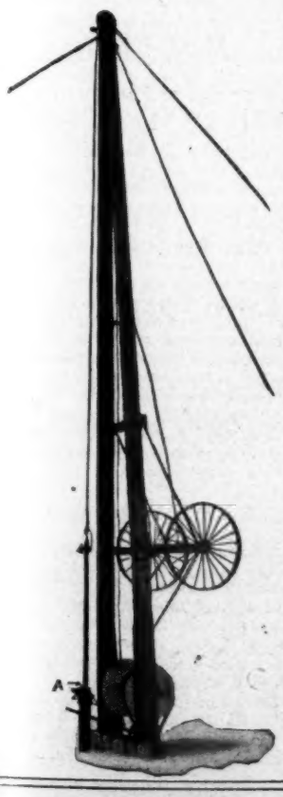
ST. LOUIS

The Safety Pulling Machine

Is the Safest, Strongest and Most Popular Pulling Machine on the Market



Mr. Producer: We wish to call your attention to the fact that we have at all times repair parts for our machines in stock.

Perhaps you wonder why we make this statement. We have in the past repaired reels and furnished different parts for several different makes of machines; we have furnished mast timbers to supply companies for an A-Mast machine that was sold by a certain supply company. Why is it necessary that they order mast timbers for machines that never saw the inside of our factory? Simply one of two things: They have either quit making them or they do not have the stock necessary to take care of their trade.

Some producer has purchased a machine that is like an European auto in this country—no available repairs, consequently no service.

Do not take something just as good, but demand the best, a machine that you will be able to get service from the factory, direct to the supply company.

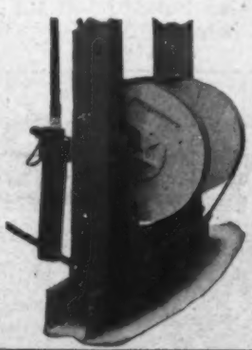
Tell your supply company that you want the Safety or Eclipse and they can get it for you. We have them to sell.

No supply company has any strings on our machines . The hustler gets the business.

The Oil Well Supply Co., National Supply Co., Jarecki Mfg. Co., Republic Supply Co. and Bovarid Supply Co. have adopted our machines as the standard for the oil field, and if you will insist on our products the rest of them will get in line.

Our Safety Pulling Machine on A-Mast, 36 feet, full-length timbers, semi-steel, safety-brake mechanism, extra broad gauge, attached truck, good for 2,000 feet. Our Safety Special, same as above, with extra heavy mast timbers, good for 3,000 feet.

We also manufacture the Eclipse Pulling Machine on A-Mast, 36 feet, full-length timbers, semi-steel reel, single brake, attached truck, extra broad gauge.



MANUFACTURED BY

THE SAFETY PULLING MACHINE CO.

DRAWER A

INDEPENDENCE, KANSAS

Introducing

The New Reed Reversing Tool

This tool takes the place of a left hand string of pipe. It is run on right hand thread stem for unscrewing pipe left in the well.

Operation of Reversing Tool

Threads in the upper end are right hand for screwing on the drill stem.

Threads in the lower end below the exposed spring are left hand.

In the lower end of the reversing tool a left hand thread tap is screwed.

Any desired length of left hand thread pipe or connections may be used between reversing tool and tap.

All connections being made and set up tight, the reversing tool is lowered in the well until the tap enters the pipe to be recovered.

When the tap enters the pipe to be unscrewed, the weight of the drill stem is let down, thereby expanding the dogs projecting through the body of the reversing tool. These dogs anchor the reversing tool in the casing, while the right hand rotation of the drill stem forces rotation of the tap left hand, cuts thread and unscrews the pipe at some point below.

As the drill stem is lifted, the dogs recede into the body of the reversing tool.

The interior of the reversing tool is packed with graphite, and if the tool should be dissembled at any time, it should be filled with heavy grease or graphite upon reassembling.

NOTE.—This reversing tool is the invention of W. C. Thomas, J. W. Fowler and J. C. Dickens, whose long practical experience in the field is well known to operators. We have acquired the exclusive rights and offer it to the trade with confidence as a labor and money saving device.

Reed Specialties:
Roller Rock Bits
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Etc.

Reed Roller Bit Co

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Stocks with Continental Supply Co. and Frick-Reid Supply Co.

CALIFORNIA OFFICE: 914 Loew State Theatre Bldg., Los Angeles. Phone 65154; ask for Mr. E. B. Wiggins.

From May 28, 1920, to May 28, 1921 (the period of nationalization), the output was 152.04 million poods.

At the same time the percentage of gusher oil increased to 23 per cent from 4.8 per cent in 1911-1913. True, towards January, 1922, there was an increase in the output, namely: 15,205.000 poods, as compared with 12,860,000 poods in January, 1921. This increase was mainly due to the amount of baled oil.

PRODUCTION

	Poods
November, 1921	6,168,000
December, 1921	7,383,000
January	7,680,000
Gusher oil	1,609,000
Gusher oil	1,501,000
Gusher oil	about 1,600,000

The Output in Grozny

	Poods
1913	73,700,000
1914	93,400.000
1915	98,100,000
1916	102,700,000

From May 28, 1920, to May 28, 1921 (period of nationalization), about 30,-000,000 poods.

In 1921 the output was about 80,000,-000 poods, and of gusher oil, i.e., of such oil which requires neither labor nor organization, there was more than 50 per cent.

The reduced drilling clearly shows the failure of the Soviet policy. Lack of food, clothing and houses explains shrinkage of workmen. During the first year of nationalization of the industry 60 per cent of the workmen left the oil-bearing lands. No wonder that the drilling of wells has practically ceased, as is shown by the following figures (insajenes—7 ft.—of length):

In the Baku District

	Poods
1913	65,169
1914	51,987
1915	47,827
1916	43,524
1921	about 1,700

In Grozny

	Poods
1913	28,878
1914	29,402
1915	25,447
1916	...
1921	about 1,000

This stoppage of production is to a certain extent a blessing in disguise. Instead of being wasted, the oil waits for the producer who will know how to get it and how to use it.

The nationalization of the oil industry is responsible for its paralysis. Possibly there were some in Russia who thought that an industry, where so much is spontaneously furnished by nature (gushers), could be carried on without private initiative, and even without capital. But hard facts show that there is no salvation for the oil industry of Russia except by private efforts and by fresh private investments.

The Genoa negotiations demonstrate that the Societ Government have to surrender to capitalism and to private initiative. The laws of economic development are stronger than artificial theorizing. Lenin has admitted in one of his speeches that Communism has failed in Russia: industry is not possible without private enterprise, and the peasants want land as freehold!

Hard object lessons have taught Russia what private property means. Communism is rapidly gving way to Capitalism and, perhaps, in the near future Russia will be a country with the strongest capitalistic mentality.

PRAIRIE PIPE LINE REPORT

TOPEKA, Kans., May 27.—The statement of Prairie Pipe Line Co., as of December 31, 1921, shows total assets and liabilities of $96,279,059 and profit and loss surplus of $39,359,285. The balance sheet as of December 31, last, follows:

Assets—Real estate, $172,279; personal property, $1,149,710; due from banks, $6,891,683; accounts receivable, $6,619,082; pipe lines and stations, $79,-263,805; Liberty bonds, $2,182,500—total, $96,279,059.

Liabilities—Capital stock, $27,000,000; accounts payable, $7,189,060; unadjusted credits, $125,623; accrued depreciation, $13,927,746; tax reserve, $8,677,345; surplus, $39,359,285—total, $96,279,059.

Pump System Gains Friends In Europe

NEW YORK, May 20. — General Gaston Gassouin, director of Franco-American Oil Co., subsidiary of the Standard Oil Co. of New Jersey, accompanied by Henry C. Bedford, Jr., general manager of the Standard Oil Co. of Europe, arrived on the French liner Paris for a short visit to America. This is General Gassouin's first trip to the United States. He is here to look over the oil industry from an American point of view. General Gassouin will visit the production fields and refineries here. Mr. Bedford is returning home to establish a more direct contact between the companies. Both will return to France in a short time. General Gassouin represented the French government recently at the Genoa conference simply as an observer on the French oil situation.

"General Gassouin," said Mr. Bedford, "has nothing to report on his trip to Genoa. He was simply the best qualified oil man in France, and he was sent down there by the government to look after the French interests. The Royal Dutch Shell Co. signed no agreement with the Soviet in Genoa. Of that I can assure you."

Mr. Bedford was asked how the pump system was taking on the continent. He replied: "The system is taking remarkably well considering the conservative quality of the people of these countries. We are expanding in Holland, the Scandinavian peninsula and Belgium and will expand in other countries as the demand warrants it. On the whole I am very agreeably surprised with the reception the retail pump system received in Europe. Other companies are taking it up in their retail distribution, as they see the advantage of it over the old system.

"Europe today is getting most of her gasoline and refined oil from Mexico and the United States, but Roumania is producing very well. Her production amounts to about 300,000 bbls. a month. The production of Galicia has fallen off, due to the rise of the Polish mark. A great many producing companies have become bankrupt due to the increase in production costs, which have increased 40%. Fluctuation of exchange is very bad for production on the continent. Persia is producing enormous quantities of oil for the Anglo-Persian Co. This field is almost entirely virgin. As to what the future of it will be, no one knows, but the indications are that it will be good for some time to come.

"The Mesopotamia situation was handled entirely from New York and on that I can make no comment. We will not go into the Caucasus until the Soviet government becomes more substantial in Europe.

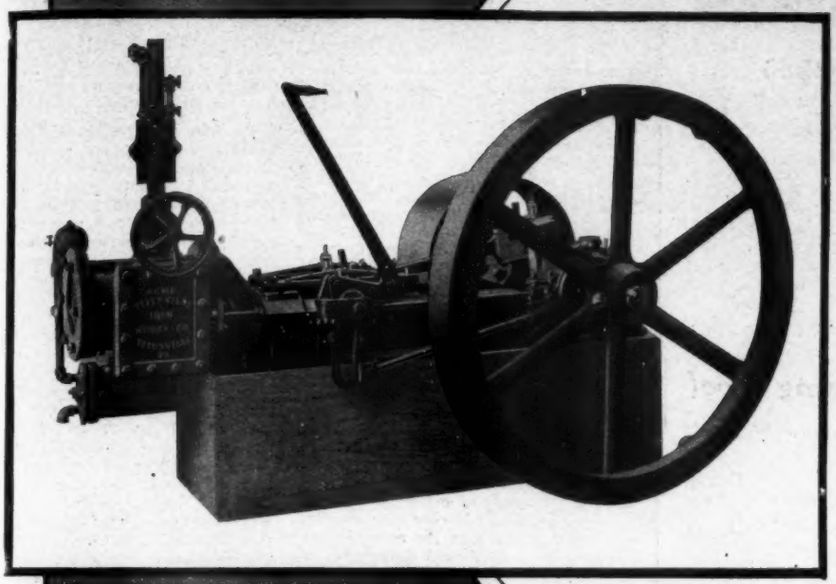
"The French taxes on gasoline prevent the automobile from becoming anything other than a luxury for the very wealthy. There are no Fords there as we have in America such that the poor man can own. All the taxes included on gasoline amount to about 40 francs a hectoliter, consequently it is necessary to retail gasoline at from 50 to 75 cents per gallon. This is too expensive for the poor man to buy. Even at this price there is very little profit in it, in fact, it only pays interest on your investment.

EASTLAND HEARING JUNE 3

EASTLAND, Tex., May 20.—The Texas Railroad Commission has set for hearing June 3 an appeal made to it from findings of city officials of Eastland by the Eastland Gas & Electric Co. Eastland officials passed an ordinance reducing the company's gas rate from 75 cents to 50 cents, effective June 1. The company executed a bond of $10,000 as a basis of the appeal, under which it may continue to collect 75 cents until the case is concluded before the State Commission.

W.F.K.

TITUSVILLE ACME DRILLING ENGINES



have been giving satisfactory service throughout the oil fields for over thirty years.

Crankshaft is of forged steel—heavy and made exceptionally strong by being forged solid from steel billets and machined to size.

This operation is typical of the many exclusive features of TITUSVILLE engines that commend it to all drilling men.

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TITUSVILLE IRON WORKS COMPANY
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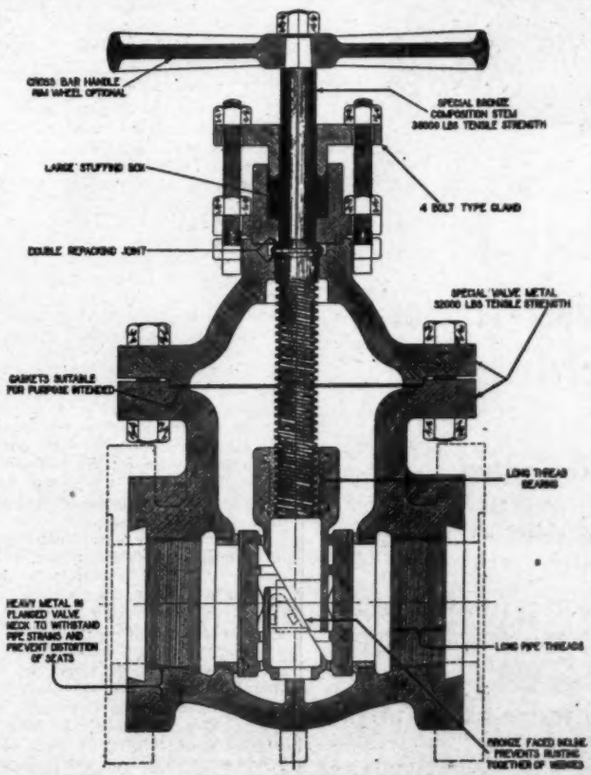
Embodies all the latest refinements in gate valve construction, such as semi-steel castings, deep stuffing box, ground joint stem collar, overcoming leaks through packing. Heavy wall of metal back of flanges or hex to give strength. Extra length, full tapered pipe threads and many other improvements.

Made in sizes from 2-inch to 14-inch, in working pressures 200 pounds to 1,500 pounds.

Special Drilling Gates

designed to work under various pressures up to 2,500-pound working pressure.


CROSS BAR HANDLE
HAND WHEEL OPTIONAL
SPECIAL BRONZE COMPOSITION STEM 34000 LBS TENSILE STRENGTH
LARGE STUFFING BOX
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DOUBLE PACKING JOINT
SPECIAL VALVE METAL 32000 LBS TENSILE STRENGTH
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HEAVY METAL IN FLANGED VALVE NECK TO WITHSTAND PIPE STRAINS AND PREVENT DISTORTION OF SEATS
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BRONZE FACED WEDGE PREVENTS RUSTING TOGETHER OF WEDGES

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WESTCOTT VALES are especially designed for refinery use.

WESTCOTT VALVE COMPANY, Inc.

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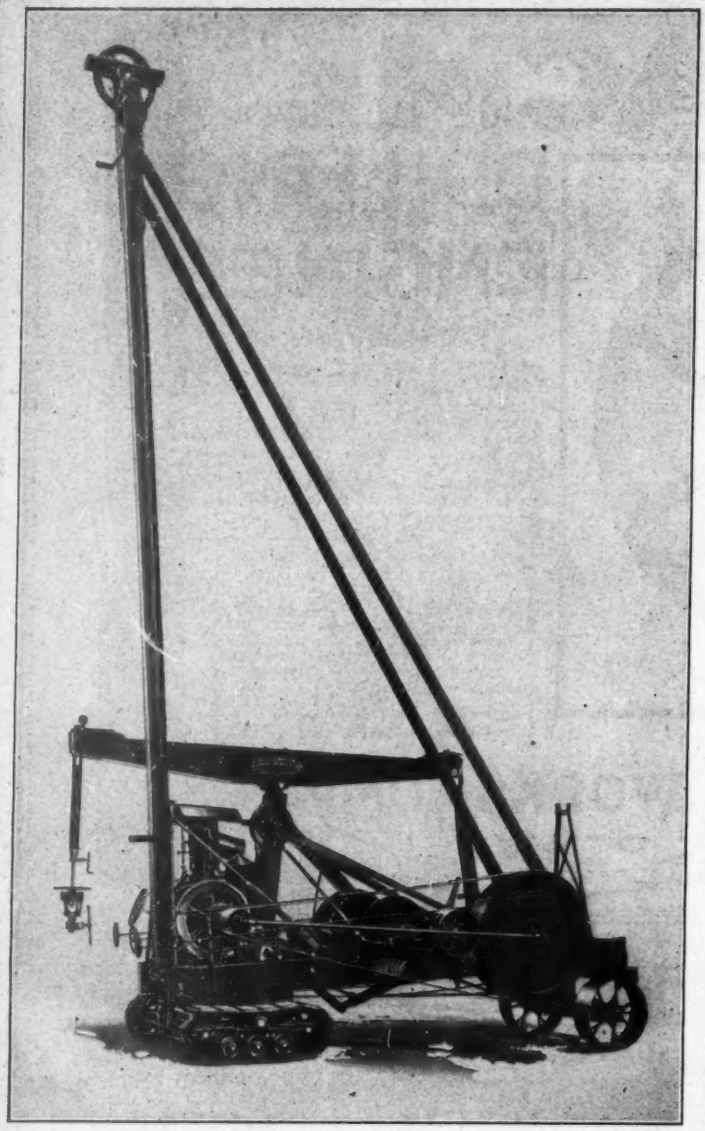

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"The Star Number 38 Super-Tractor" Drilling Machine

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Moving Troubles Eliminated

It goes anywhere over soggy, sandy, rocky or hilly ground.

This machine is making good not only as a driller but as a cleaning out machine in deep territory.

We will be glad to tell you more about any of the many styles of Star Machines.

THE STAR DRILLING MACHINE CO.

AKRON, OHIO

THE COMPILATION OF OIL STATISTICS

Mysteries of the Monthly Summary of Foreign Commerce of the U. S. Explained—Changes Made in Classification of Commodities at Beginning of 1922—Gas and Fuel Oil in Separate Classes in 1923—Differences of Opinion.

By Charles E. Kern

WASHINGTON, D. C., May 29.—The oil industry is very familiar with the Monthly Summary of Foreign Commerce of the United States, published monthly by the Bureau of Foreign and Domestic Commerce, Department of Commerce, but very few readers of this interesting statistical publication have any definite idea concerning the manner in which the statistics are gathered, compiled or published.

This lack of familiarity with this statistical work often causes people to wonder whether there is any element of uncertainty in the methods of collecting and compiling these figures that might affect their accuracy. They have confidence in the good faith of the government but just how far the human element enters into the transaction to rob it of absolute reliability they do not know.

The Monthly Summary consists of about 100 large pages of closely printed statistical tables and covers the exports and imports of every industry of the United States, and calls into activity every port of export in the country. At the head of the statistical department in this city is Mr. John Hohn, who for a greater number of years than the average man can remember has occupied this important position and calls to these duties the mind of a thoroughly trained statistician. Mr. Hohn never generalizes or expresses vague opinions. He is one of those quiet unobtrusive and modest men who delight to think in definite terms and he is never quite so much at ease as when he expresses his ideas in figures. Probably his ambition in the issuance of statistics has never been gratified as all of this work has its limitations fixed by the amount of appropriations available.

Statistics Made to Talk

As interest in foreign trade grows it is likely that one industry after another will send delegations to Washington to ask John Hohn how he could add to statistical knowledge by an enlargement of his work and they will be well repaid by such a visit. Every one should remember that these statistics can be made to talk in the greatest possible detail if sufficient appropriations are made. Such appropriations should go along with appropriations for the extension of the merchant marine, the consular service and all other activities connected with the advancement of foreign trade which is sure to call forth greater and greater interest as the years roll by.

Now for the story of the making of the Monthly Summary with particular attention to the statistics relating to the petroleum industry, which vast industry occupies but a few pages of that publication.

Whenever any person exports something from the United States he is required to fill out a declaration describing the article exported, giving the number of packages, kind of merchandise, kind of goods, the quantity and value, and the country of destination. If the goods are shipped by vessel the declaration has been sworn to either before a notary public or the collector of customs. This declaration is filed at the custom house at the port from which the goods leave the United States seaboard or border port of the United States.

The same procedure prevails when goods are imported. The declarations of export and the import entries form the basis of all government statistics of imports and exports.

These declarations are taken in at from 300 to 400 customs houses and at the close of business each day they are mailed to the Bureau of Statistics in the City of New York.

How Errors Are Made

In these declarations the goods have been described by the exporter or importer's packing or invoice list or from whatever information they wish to use. When the lists get to New York they have to be classified under the classes provided in the official statistical import and export classification. In the case of all exports the number showing the class to which they belong is inserted at the custom house before the declarations are forwarded to New York City, and it is acknowledged that this custom does not produce the most perfect results and it is the source of numerous errors because the clerks of the several hundred customs houses cannot be depended upon to maintain that uniformity which would exist if the work were done by fewer people under direct supervision. Naturally there are misunderstandings respecting the classifications. As these exports involve no question of taxation, and as they are kept track of only for statistical purposes, the necessity for absolute accuracy is not what it is in the case of imports.

In previous years and up to January, 1922, the Bureau of Foreign and Domestic Commerce had a separate classification for gasoline and another for naphthas, benzine and other light products of distillation. There was a great deal of confusion because there is no uniform standard for gasoline. So, beginning January, 1922, the Bureau has had but one class for "gasoline, naphthas and other refined light products," all in one group. This was done because of the impossibility in distinguishing between gasoline, benzine and naphthas.

Gas and Fuel Oils

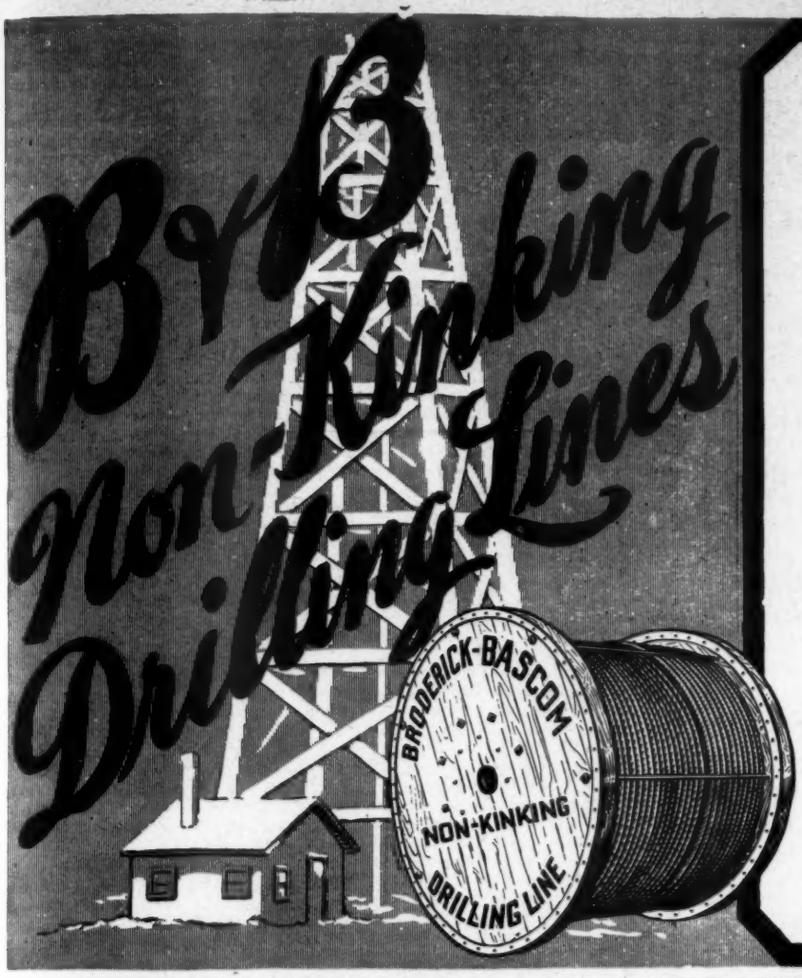
Gas and fuel oil are shown in one class in the statistical tables. However, it is contended by the trade that these are different products and beginning with 1923 they will be shown separately if shippers will exercise care in giving the proper descriptions. This statement makes it very plain that the bureau must depend largely upon the care exercised by the shippers in obtaining the proper classification and no reason is known why any shipper would wish to conceal the nature of the shipment and being under oath it is supposed he would exercise extreme care. Carelessness is the only known reason why any mistake in the making out of the declarations should be made.

Probably the greatest difficulty in classifying exports is in the case of lubricating oils. With the beginning of 1922 a separate class was made for light oils in packages, high-grade machine oils in bottles, the latter being such as Three-in-One, various sewing machine oils, etc.

A distinction is made in classification between paraffin lubricating oils which is not entirely satisfactory. The bureau is attempting at present to get recommendations from the trade as to the further and more logical sub-divisions of lubricating oils.

The Standard Oil and other companies have been asked to make suggestions along these lines, and it has been found they do not agree among themselves. The making of class of cylinder oils is about as far as the bureau feels itself competent to go with the present understanding of these classes of lubricants.

At the present time petroleum, asphalt and other residuums are in one class with the quantity units of a ton. This, too, has not been entirely satisfactory



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B & B Non-Kinking Drilling Lines hang "limp as a rag" above the beam and spring like live-ones below the screw. That's good action for you—good action kept up longer than you ever hope for, because B & B Non-Kinking Drilling Lines are every bit as strong as they are elastic and flexible. You make hole in better time. You get better action and better service. Surely that makes B & B Drilling Lines the better buy.

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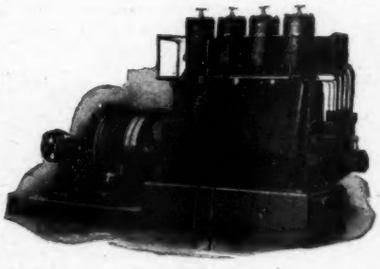

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No gears,
No air compressor,
No valves to grind, except small check valves,
No cams, except for air starter,
No moving parts on cylinder heads,
No stuffing-boxes on injection pump plungers,
Symmetrical cylinder heads and flat top pistons,
No moving parts in spray nozzle, except check valves,
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because many heavy residuums tar, etc., are sold by the gallon and not by the ton. Petroleum jellies, vaseline and petrolatum and others are shown separately under chemical products.

Inexperienced Office Boys

Exports of paraffin wax are very large and in previous years have been shown in one class, but beginning 1922 they have been subdivided into refined and unrefined.

While it is true that there is no known object for giving incorrect information respecting exports by the exporters, there is one source of inaccuracy which under the present methods there seems to be no way to overcome. It lies in the fact that inexperienced office boys frequently assist the exporter in the making out of his declaration, and in fact these boys often make them out preparatory to being signed by the exporter. Unfortunately the making out of these returns is not regarded as a matter of importance by the customs officers because they do not involve any question of revenue.

The making out of these declarations is required under section 4200 of the revised satutes, approved in 1820. It is a long time institution as will be seen by the length of time that has elapsed since the statute was passed. No penalty was attached to any failure to make out the declarations or to the making out of any declaration erroneously. However, the collector may refuse clearance to any ship that has goods on board for which no export declaration has been filed at the custom house. So there is no lack of power to require the exporter to make out his declaration and the requirement that it shall be sworn to before a notary public or the collector seems to meet all practical purposes of accuracy, so far as the statute is concerned. The Government knows nothing about the exports except in respect to this declaration.

The greatest trouble experienced is encountered in the case of lubricating oil because that is handled by commission merchants very largely and also by other dealers in general merchandise. In these cases it is the lack of knowledge of this class of shippers rather than any lack of good intentions.

Criticism Always Welcomed

In the case of importations of petroleum the Bureau of Statistics does have considerable difficulty in locating the country from which the importation is made. There being no duty on petroleum importations here there is no object attained in this transaction except the compilation of reliable statistics. Often the reports from the custom houses will show that crude oil is imported from countries where there is no production of crude. That often occurs in the case of the West Indies, as well as other places where there is no crude oil. Some mistakes are due to the action of the fuel burning steamers unloading a part of their bunker stores or taking on such stores in places where oil is not produced. When taking on stores under such circumstances and unloading it in the United States they state on their import entry only the place from which they obtained the crude oil.

One of the very active although friendly critics of the statistics of the Bureau of Foreign and Domestic Commerce is the Bureau of Mines. Whether anyone else attempts to inspect and criticise these figures the Bureau of Mines keeps an eagle eye upon them, and if anything questionable enters into the work the bureau is there to question it. Everyone may be sure that John Hohn welcomes no one with such sincerity as he does the man who comes to question these statistics as he believes honest criticism is the best guarantee of correct work. He is looking out for inaccuracies all the time and he likes other people to help him.

Use of Machinery

It must be borne in mind that the export and import statistics are a by-product of the customs procedure. But in the case of goods subject to a duty the duty value is taken for satistical purposes. Under the present law, of course, this value is the foreign value.

The Bureau of Customs Statistics at New York which handles the declarations of imports and exports coming to them from the customs houses prior to sending the information to this city, was established in 1915 by the Treasury Department for the purpose of compiling these import and export statistics mechanically, that is by machinery. Previous to that time these statistics were compiled at each custom house throughout the United States and monthly reports were sent by each collector of the Department of Commerce or division of statistics of the Bureau of Foreign and Domestic Commerce. The expense of compiling statistics at each custom house became so great that the Treasury Department started experiments with mechanical tabulation. These machines were provided in sufficient quantity in 1916 that the reports from the different custom houses were discontinued.

This mechanical tabulation makes it possible for the Bureau of Customs Statistics in New York to punch a card for every item shown on the export declaration or on the import entry. Numbers are assigned to each commodity class, to each customs district and to each foreign country and holes are punched on the cards corresponding to those code numbers, in proper columns for districts, ports, country of destination, nationality of vessel and quantity and value of the particular commodity.

These cards are assorted by class and run through the tabulating machines daily for the purpose of verification, and it has been found that this verification is responsible for a great deal of the accuracy of the statistics as they finally appear.

Tabulation of Data

Six days after the close of each month, after all the declarations and entries filed on the Pacific Coast and other distant custom houses have had time to reach New York, all the cards for the month are run through the assorting machines and assembled by classes and under each class of countries. They are then run through the tabulating machines, which are of the same general character as the ordinary recording and adding machines, and the monthly totals by countries and custom house districts under each class are printed on sheets. These sheets are sent to the division of statistics at Washington and the totals are published in the Monthly Summary.

There are code numbers for everything. France for instance is 28, a certain kind of machinery is 7011 and the New York district is 10.

The monthly summary for the current month this year is compared with the same month of the previous year. Suggestions have been made that it would be well to make comparisons of the 12 months ending with the month of the report with the previous 12 months. However that has never been done. The Bureau always makes the comparisons of the 12 months beginning with the fiscal or calendar year. From July to December the fiscal year is used and from June to June it is the calendar year that is the basis of comparison, so that the periods of comparison are from seven to twleve months. There are never comparisons of periods less than seven months, except, of course, the comparisons of the month for which the statistics are gathered with the same month of the previous year.

Complete Detail Not Possible

In the Monthly Summary it has been found impossible to publish the statistics in complete detail for each article showing the country of origin or the country of destination. To attempt to do that with anything like the present force of employes would defeat the object of the entire publication, which is to give prompt statistics. The printing of the publication also would be delayed. So it is that minor articles do not show countries of origin or destination. In the case of the most important classes

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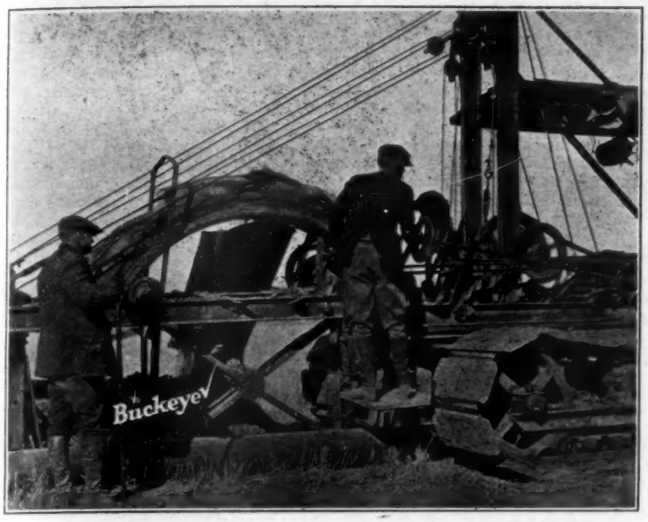
—72 Mile Pipe Line Laid in 30 Days



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Across this rough stretch of land, the Illinois Pipe Line Co. handled the greatest pipe line engineering project of its kind in respect to speed. In 30 days they excavated for, laid, connected and covered up 72 miles of pipe line just before a cold wave, which would have ended the work for the winter, swept over that section.

They used a Buckeye Trench Excavator No. 3, which cuts 15 and 18 inches wide by 4½ feet deep—an all steel machine—and a Buckeye Pipe-Screwing Machine. Here again the Buckeye demonstrated that quality of **dependability,** so well known and appreciated among contractors, meaning **big yardage at low cost.**

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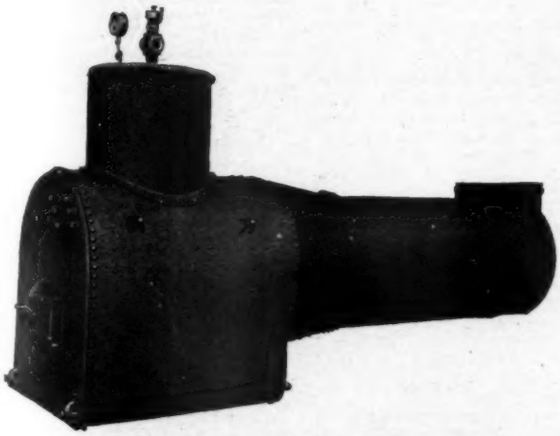

Brownell Standard Oil Country Boilers

If you have some old issues of Brownell Catalogues back in the "Eighties" and "Nineties" you will find Brownell Oil Country boilers illustrated and described. Many of these boilers are found in the Ohio and Indiana fields today.

In 1922 The Brownell Company is still building Oil Country Boilers, improved by past experience and by recent developments in manufacturing methods and machinery. You can find these boilers in all the oil fields of the country giving entire satisfaction. You can't go wrong in buying Brownell Boilers.

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of articles entering into foreign trade particularly in the case of petroleum these places of destination are given.

For those who might think that some foreign country might have a part in the furnishing of information for these statistics, and in that way raise a question as to any foreign influence affecting this Government function, it should be understood that no foreign country has any part whatever in furnishing anything that could affect the results. In the case of exports all figures are furnished by firms located in this country. The import figures are, of course, only a part of the information necessary in the assessment of duties. The import entries are based on consular invoices, that is the invoice prepared by the foreign shippers and certified before the American consul. In the case of the export declarations while they are sworn to there is no inspection on the part of the Government and no verification by the Government of any kind to guarantee that they are correct. On the whole, the import statistics are usually more accurate than the export statistics.

Increased Classification

Previous to 1922 there were about 700 classes in each of the import and export schedules of all kinds. About 400 of them showed quantities as well as values. Beginning with January, 1922, the export schedule has been revived and extended until now it shows 1,250 separate classes and each of these classes shows quantity as well as value.

Previous to December under the old classification the Bureau of Customs Statistics in New York was able to complete all monthly reports needed for the Monthly Summary by the 15th of each month and three days were required in Washington to complete copy for the printer. So the summary was ready for delivery on the 25th of each month. That was under the old schedule. However, since January, 1922, when the revised export classification went into effect the work of compiling the satistics in the Bureau of Customs Statistics in New York has been extended to such a degree that it has not been possible to complete these monthly reports before the 25th of the succeeding month, the copy being sent to the printer a day or two thereafter so that the entire publication is not ready for distribution before the 10th of the second month succeeding the one to which the figures relate. In other words the extension of the statistical classification causes a delay in the publication of the Monthly Summary of about two weeks.

In order to speed up the dissemination of this information, however, the photostat copies of the copy as prepared for the printer are made available to persons interested at the department. The burea is not jealous of anyone who can put this statistical information before the public before it issues it "officially." They do not mind having a "beat" scored on them.

Small Cost of Work

All the elaborate work necessary for the compilation and distribution of this publication does not involve either a large force or a large appropriation. In this city there are 34 people employed with an annual salary list aggregating about $50,000. The Bureau of Customs Statistics in New York employs 92 people and its mechanical equipment, the total expense of that bureau being $155,000 annually.

The work of the customs houses in the preparation of export declarations and the copying of import entries as a by-product of the work they ordinarily have to do is not taken into consideration in these estimates of expense.

The revision and extension of the satistical classification referred to in the foregoing from 700 to 1,250 classes was undertaken in compliance with the demands of commercial and industrial concerns that needed the details given in the enlarged plan. However, the delay in the compilation and publication of the statistics since the new classification went into effect is rather resented by the trade, but with the present appropriation this delay cannot be prevented.

At this time this statistical work is divided between the Treasury and the Commerce Departments. The Treasury provides for its part of the expense from a lump sum appropriation and the more it gives to statistics the less it will have for its other work so that statisticians are looked upon as guests with a doubtful welcome. They have been asked to provide more equipment for the work, but they only reply that they haven't the money to spare. They need their money for customs work. Finally to get rid of the statistical work and the necessity of giving some of its funds for that purpose the Treasury Department offered to turn the whole thing over to commerce, but legislation for that purpose, almost enacted, was allowed to die. Then an effort was made to do by executive order what they had not done by legislation, and the Comptroller of the Treasury said they would transfer the Bureau and its 92 employes, but they could not divert treasury money for that purpose. That didn't help at all. They are now trying to get the statistical work under a single control with an independent appropriation.

The coming on of the new tariff law will make the work of the Statistical Bureau more intricate, and to meet that and several other improvements there is now a demand for an additional appropriation of $122,000 which with economies incidentally effected and a revision of some of the methods will make the cost of the entire work $277,000. That would keep tab on foreign trade of the United States amounting to $13,500,000,000 in value in 1920. While the total value of that trade has dropped its volume is about the same.

WANT TERM "IN TRANSIT" DEFINED AS TO TIME

BARTLESVILLE, Okla., May 29.—County Commissioner Bert Gaddis, of Washington County, is asking commissioners of other counties containing tank farms to join the Washington County board in employing an attorney to take a case into court to determine the difference between the terms "in storage" and "in transit" as applied to crude oil. What they want to know particularly how long oil may be in transit before it may be said to be in storage.

Commissioner Gaddis says he has found that the Prairie Pipe Line Co. has in its tanks in this county oil that has been there for six months. This has not been assessed for taxes because the Prairie says it is in transit, that it belongs to other companies and is being held in transit by the Prairie. To tax it would yield the county $300,000 for 1922 and $52,000 for 1921.

NEW OFFICIAL OF DOHERTY INTERESTS HIGHLY HONORED

BARTLESVILLE, Okla., May 30.—Three hundred members of the Doherty Men's Fraternity of Bartlesville gave a reception and smoker here in honor of R. C. Russom, vice president and general manager of the Empire Companies, on the eve of his departure for New York to become associated in the management of the Doherty Companies. C. C. Julian, of the legal department of the Empire, presided. H. R. Straight, a vice president of the Empire, was a speaker, and Judge Hawks, of the legal department, presented the guest with a silver service provided by the fraternity. Others who spoke were Attorney General George Short, State Treasurer A. N. Leecraft and R. E. Stafford, vice president of the Continental Asphalt & Petroleum Co., all of Oklahoma City; F. L. Blanchard, formerly associate editor of the New York Tribune and now director of public relations for the Cities Service Co.; and W. A. Sinsheimer, head of the oil production division of the New York office of the Cities Service Co. W.F.K.

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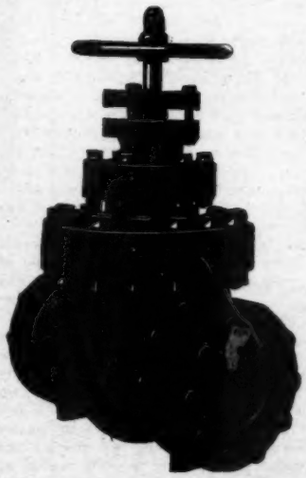

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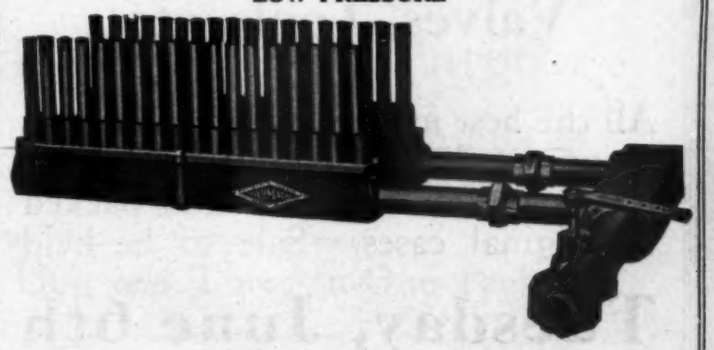

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THOMAS KIER KING'S RECOLLECTIONS

A Venerable Oil Man Who Has Spent 79 Years Where Oil Was Produced Now Passing the Evening of Life in Muskogee, Okla., Far from Where He Started—Drilled the Famous 646 Well in Cherry Grove Field.

By Paul S. Hedrick

Thomas Kier King, almost an octogenarian, who lives in Muskogee, Okla., lays claim to having been one of the drillers on the famous 646 well in the Cherry Grove district, Western Pennsylvania, which came in in the spring of 1881 and caused a panic on the oil exchange in Bradford, Oil City and Pittsburgh, the bottom falling out of the credit balance market as a result of the wild rumors concerning the well. This well is one of the outstanding tests in all oil history. More has been written about it than on any other well in all times.

Mr. King is a hale and hearty man. His 79 years have literally been spent among the oil wells of the country and in talking to The Oil and Gas Journal's representative he said it was his fondest wish that when he must die his last breath will be taken near where he can hear the creak of a walking beam.

Thomas Kier King's parents gave him some of the first oil ever sold commercially in this country, when he had stomach ache, just as modern parents give their children Castoria, or some other soothing fluid. According to Mr. King the dosing with petroleum that he received was fully five years before Colonel Edward Laurentine Drake drilled in his famous well at Titusville in 1859.

Mr. King was born near Tarentum, a town famous in Pennsylvania oil history, and a review of Mr. King's life would come nearer being a complete account of the petroleum industry than perhaps any other living man.

He celebrated his 79th birthday on April 13, and one would hardly take him to be over 50 years to see him about the oil well supply houses in Muskogee, meeting contractors and field men and exchanging views of the early day affairs with those of present times.

Jacob King, father, and Samuel Kier, uncle of Mr. King, were salt manufacturers in Pennsylvania and drilled several big salt wells on Oil Creek, in Western Pennsylvania.

In drilling to the salt sand, one or two of these wells passed through sand rocks impregnated with what in the early days was called rock-oil. Enough of this petroleum would trickle out to give the salt brine a taste of the oil and these two salt wells were practically ruined.

Samuel Kier, according to Mr. King, and the Encyclopedia Americana bears him out, finally began to bottle some of the oil and send agents about the country selling it as a medicine. The bottles were labeled "Thomas Kier's Rock Oil or Petroleum, good especially for colds, croups, pneumonia, etc." This was about 1854, five years before Drake's well was completed.

"One of my first recollections," said Mr. King, "is being dosed with some of this 'rock oil' for a bad cold; a nasty dose, too. I couldn't have been more than two or three years old."

Afterwards the Kings and Kiers (there were two Kier brothers) began refining some oil at Pittsburgh and selling it for illuminating purposes. This too was several years before Drake's day.

As Thomas Kier King grew up he became an oil man, for the oil drilling had succeeded salt drilling in that region by the time he was ready to quit school.

Pride in Achivement

While Mr. King took an active part in much of the excitement of the early days in American oil history, his proudest achievement was his part in the drilling of the famous 646 well in the Cherry Grove district, Warren County.

Captain Peter Grace, owner of the 646 well, which was on Dimick and others lease, held the operation a mystery for 90 days. All his efforts were suddenly halted when the cap of the well blew off and the landscape was saturated before it could be closed again. Mr. King was field superintendent for Captain Grace during its mystery period and afterwards he was given complete charge of the well.

The 646 not only broke the oil market, but it broke many a man in it, and Mr. King says regretfully that more than one man committed suicide after losing all his fortune and credit in the terrible fall of crude certificates.

Chronology of 646

In the Derrick's Handbook of Petroleum, under the heading of Oil Region Chronology, the following paragraphic mention of 646 is made:

March 1, 1882—Considerable interest attaches to Grace & Dimick's well, Lot 646, Cherry Grove Township, Warren County, and the latest news from the well was that a fishing job was on at 1,500 feet.

March 24—Grace & Dimick's mystery on 646, Cherry Grove, is boarded up as tightly as ever and under constant guard. The report has been spread that there is oil in the hole and that it has been plugged to allow the owners to acquire more territory in the vicinity of the well.

March 29—The mystery on 646 made a flow, the extent of which is unknown, but it exercises a depressing influence on the oil market.

April 2—The mystery on 646 still guarded and would-be intruders are warned away with the contents of shotguns whistling about their ears.

April 6—Big prices are said to have been paid for territory in the vicinity of the mystery on 646.

April 19—Property in the vicinity of the mystery on 646 is in demand at big prices. Among the firms getting into the field are T. J. Vandegrift, Forest Oil Co., Davis & Murphy, P. M. Shannon, Scott & Taylor, Johnson & Hallock Bros., Tom Loan, Dr. Book, Andy Gartland, Wesley Chambers, Clark & Foster, Cooper Bros. & Giles, The Anchor Oil Co., The Mehoopany Oil Co., Charles H. Filkins and others.

April 21—Garfield is the name of a new town springing up in the vicinity of the mystery on 646, about which, so far, vague rumors only are given out.

April 26—Reported 646 has broken loose and flowing largely. It flowed enough to sprinkle the derrick, but was again got under control. Another report says the well is flowing at the rate of 100 bbls. an hour.

April 29—Rumors from 646 affect the market and the price is off 75 cents a barrel.

May 10—The Union Oil Co. is laying a line to 646; it will require eight miles to reach the well on the nearest point on the company's lines.

May 18—Drill started again on 646. First estimates place its production at 100 bbls. Then it was increased to 150 bbls. At 3 p. m. estimated good for 200 bbls.; 6 p. m. estimated good for 500 bbls. again flowing steadily at 5:30 p. m.

May 19—The well on 646 has caused an unlimited excitement; in the first 24 hours its production was over 1,000 bbls. The report from the well caused a 4-cent break in the market and certificates closed for the day at 65¾ cents.

May 20—A pump is working to take care of the oil from 646 and the well is flowing as strong as ever.

May 22—The pump is working constantly at 646, but additional tankage is necessary to take care of the oil. Murphy well and the Mehoopany well on neighboring lots are guarded. Rockwell

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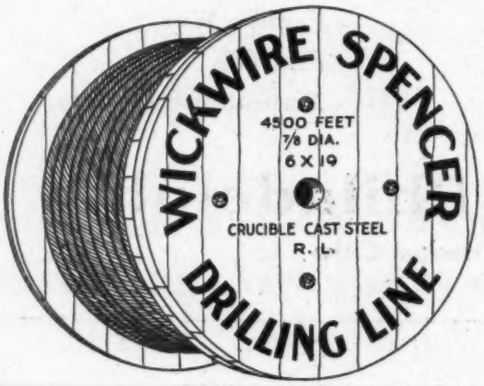

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KEYSTONE PIPE & SUPPLY CO., Fort Worth, Breckenridge, Wichita Falls, and Graham, Tex.

Stocks of Oil Well Lines Are Carried at These Points

& Co. are asking $500 an acre for land lying half a mile in advance of the gusher on 646.

June 13—The 646 mystery drilled deeper and responds with a production estimated at 2,500 bbls. a day. The Murphy 619 touched up and doing 1,600 bbls. The Forest Oil Co.'s well made 2,400 bbls. and the Mehoopany well 1,800 bbls. The Anchor Oil Co.'s 647 is burning with the well flowing 2,000 bbls. a day, all of which was destroyed.

Cherry Grove was one of the greatest fields in the old Pennsylvania oil country. It had a short life but a merry one.

The modern method of drilling is said to have been originated by Jacob King, father of the veteran Muskogee oil man. All wells were drilled with spring poles, as some antiquated water well drillers still use in the backwoods of the east and southwest.

Instead of driving a joint or two of casing to shut off the surface water in starting a well, the early practice was to dig a hole down to bed rock and set up a wooden conductor, which held the surface hole. If a cave was struck below bed rock that could not be handled the well usually had to be abandoned. It was years before iron pipe was used to case a well.

In digging out the holes to set some of these wooden conductors in test wells being drilled on Oil Creek in 1860, the King's came upon the remains of ancient pits which had been constructed, scientists estimate, thousands of years before, to catch seeping oil. These ancient pits were square and lined with small timbers. In one of them, the King's found two wooden paddles of rough construction which were taken to New York City and which Mr. King believes are either today in the Museum of Natural History at New York City, or in the Smithsonian Institution at Washington.

Mr. King took a small part in the movement to perpetuate the memory of Colonel Drake through the Drake Memorial Association, of which Captain E. C. Bell, of Titusville, Pa., is the secretary, but says that he finds the oil men who could make the association a success are too busy to give either their time or means, and the ones who would help it, are financially unable to contribute but small sums to the movement.

Relative to the pits, which the King's found, Encyclopedia Americana, says:

"On the western continent this important mineral product (petroleum) was known to the aborigines centuries before the discovery by Christopher Columbus. The presence of pits excavated for the purpose of collecting oil, along the waters of Oil Creek and French Creek, bear witness to this fact. Many of these were from six to eight feet square and varied in depth from 4 to 12 feet.

"They were lined with heavy timbers and were always to be found in the valleys and along streams where natural seeps of petroleum existed. They were not constructed by the Seneca or other Indian tribes that occupied the territory when the first white men appeared in America. They were, doubtless, the work of the same race of people who developed the copper deposits of Lake Superior, the lead ores of Lexington, Ky., and built the great mounds in Ohio, and other of our western states."

Relative to the uncle of Mr. King, the same book says:

"From 1848 to 1856, Mr. Samuel Kier of Pittsburgh, Pa., bottled the petroleum produced from the salt wells at Tarentum and sold quantities of it for medicine. A portion of the petroleum from these wells was used in its crude state for illumination, but because of the smoke and offensive odor, it was unfit for burning indoors. Mr. Kier, also made a number of experiments and succeeded in manufacturing an illuminating oil, but owing to the crude and imperfect methods employed, and the faulty character of the lamps, it did not become popular as a source of artificial light."

Oil Companies Keep Complete Tire Record

The oil industry is one of the largest users of automobile casings and tires. Some of the companies have begun to make a study of the tire problem so as to secure greater service from the tires they purchase.

The Gypsy Oil Co. and Gulf Pipe Line Co., which are allied concerns, have made great strides in this matter, and E. P. Nopper, automotive statistician for the Gypsy-Gulf organization, has checked the tire proposition so long that he is able to talk intelligently and thoroughly about casings and tires.

The attention of purchasing agents of the Gypsy-Gulf companies was first directed toward the advisability of securing accurate data on tires and casings by their inability to answer the following question:

"Do you known whether you are getting the best value possible from your automobile and truck tires?"

"We have developed a system whereby we can trace down to a fine point the mileage on each casing for months that it operates," says Mr. Nopper. "The central garage of the Gypsy-Gulf companies keeps a cross index of all casings; one card is carried under the car number, while the other card is carried under the tire number. If one knows either the car or tire number he can easily locate the tire or the car it belongs to. On these cards there is shown the date of installation, size, make, number, mileage when removed, date removed and what adjustment. On the automobile expense account form, which is submitted by each operator of a car or truck each month, there is a space provided in the back of this form to show the number and position of each casing. The front of the form, along with other information, embodies the mileage this car made that month. In this manner if there appears any month a new casing number we immediately trace its history. This gives a change of location of a tire, which change can happen sometimes unawares, and gives us the mileage of that particular casing that month."

The central garage also keeps a book record of each casing. Books are divided between cords and fabric casings. They are then sub-divided between what the Gypsy-Gulf men term low and guaranteed mileage, or the mileage the manufacturers guarantee the casing to run, and the low mileage depends on the discount received by the company, for there is a point between 5,400 and 6,000 miles on a fabric where it is not worth asking an adjustment.

Each of the Gypsy-Gulf warehouses has been instructed to show on the face of each transfer report, pertaining to automobile and truck casings, the car number, number, size and make of the casing that it issues, whether cord or fabric, and the total mileage that the old casing made. The old tag, with all the data available, is sent to the central garage, where it is inspected and a decision made as to whether the company may seek an adjustment. Most of the dealers welcome the reports of the company, as the data compiled is sent on to the manufacturers.

Mr. Nopper says that the company has discovered that geographical conditions also enter into the life of a casing.

We find that certain makes and sizes of tires are peculiarly adapted for work in a particular district. They may excel all other tires in efficiency in one district, while in another the premier service is given by a different make of tire. A record is kept of the district in which the casing is used and a recapitulation is made of the different sizes of different makes to ascertain where they work to the best advantage. It has been found very true that a peculiar construction of one make of tire is more adaptable to certain geographical conditions than another make would be, and this point can well be solved by a proper record."

GASOLINE FROM UNCONDENSED STILL VAPORS

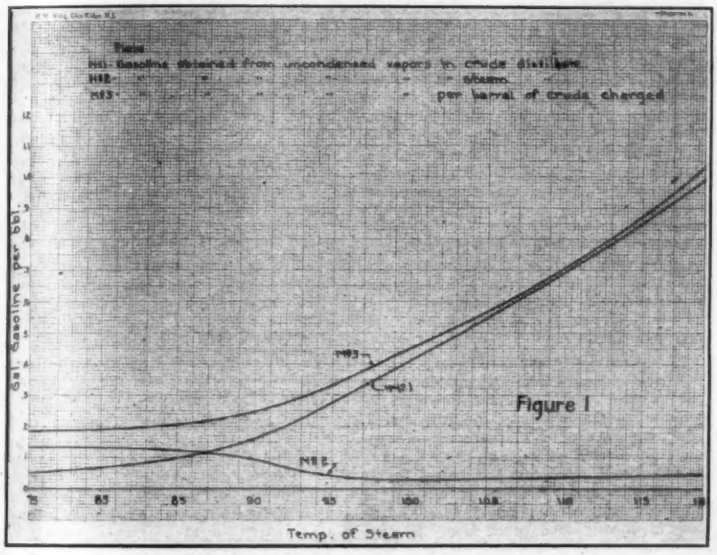
(Continued from Page 7)

Condensation of the vapors coming from the still into liquid is accomplished by (a) aerial condensation, or (b) condensation in coils submerged in water.

Aerial Condensation. — Considerable condensation can be effected by passing the vapor from the stills through pipes or shells having large surfaces exposed to the air. This method is employed in the aerial condensers used in connection with pressure stills. The heavier fractions are condensed and drain back into the still, where they are again subjected to cracking. In fractionating towers or dephlegmators, areal condensation also is employed for separating the distillates into fractions having comparatively narrow boiling ranges.

Condensation in Submerged Coils

The common method of condensation is by means of coils, either in series or in parallel, submerged in a condenser box, through which water is circulated, the cold water entering at the bottom and the warm water discharging at the top. The coils are smaller in diameter at the bottom of the box than at the top, as less capacity is required after the vapors condense to liquid. The amount of water circulated is based on the heat transfer necessary to condense the vapors.



Nature and Amount of Uncondensed Vapors

Uncondensed vapors from the condenser are generally classified under two heads: "sweet gas" and "sour gas." The term "sweet gas" refers to those vapors remaining uncondensed during the distillation of the lighter ends of the crude. In the batch process these vapors are formed with light and heavy naphthas, and in the continuous process from the first few stills of the battery, which remove the naphthas. The term "sour gas" refers to those vapors formed by cracking, either in tar stills or in pressure stills. This term is very descriptive, since cracked gases are largely unsaturated and have the marked odor peculiar to cracked products. Sulphur compounds are usually present in cracked gases and are partly responsible for the unpleasant odor.

The distillation process that is used not only governs the nature of the gas, but also the amount that is formed from a definite quantity of crude. A skimming plant that removes only gasoline, kerosene and gas oil will not produce the same amount of vapor as a plant that is equipped with pressure stills or one that is producing comparatively large quantities of cracked gases in distilling down to coke.

In skimming plants practically all the vapors that remain uncondensed are formed during the distillation of the first 15 per cent of the crude. After this fraction has been removed the vapors consist largely of hydrocarbons that can be readily condensed at temperatures maintained in the ordinary condenser. In addition to the uncondensed vapor from the crude stills, large quantities of vapor remain uncondensed when the naphtha fractions are rerun in the steam stills.

With these two sources of gas it is rather inexpensive to install gas lines for removing the vapors as rapidly as formed The problem of collecting the vapors is correspondingly simple, since the lines from both sources can be joined and taken to a central point where a small vacuum is held. The gas can then be treated either by compression or absorption. There is generally no need for "scrubbing" this gas to remove sulphur, since the sulphur content of the gas from the naphtha fractions of the crude is very low and not objectionable. In some plants an even simpler installation is made, consisting of a 6-inch header into which the gas passes under its own pressure. This header is cooled by sprays and recovers a considerable quantity of gasoline. The entering gas is nearly all gasoline vapor without any appreciable amount of permanent gas. Tests of this type of gas have shown it to contain as much as 30 gallons of gasoline per 1,000 cubic feet of vapor. In other words, as high as 90 per cent of the vapor can be condensed and held as gasoline. In the plants visited by the writer an average of about seven gallons per 1,000 cubic feet was obtained.

Refineries With Pressure Stills

The conditions existing in refineries operating pressure stills are different from those at skimming plants. Uncondensed vapors are obtained not only from crude and steam stills, but also from pressure stills. Large amounts of very rich uncondensed vapor also are obtained from the rerunning of pressure-still distillate. These vapors yield as high as 24 gallons of gasoline per 1,000 cubic feet. Experiments have shown that in running a barrel of Cushing crude about 52 cubic feet of vapor remains uncondensed. Under the same conditions of condensation a barrel of gas oil distilled under pressure gave 163 cubic feet of gas with an average gasoline content of 2.8 gallons per 1,000 cubic feet. In distillation under pressure large quantities of fixed gases are formed. When the gas from cracking stills is added to the gas from the crude oil and steam stills, the gasoline content of the mixture will be lower than that of the gas from the latter two sources. The volume of gas, however, will be so increased that the total amount of gasoline recovered will be considerably greater.

Since the sources of gas are more

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As you will note it has saved us many times its cost and we are well pleased with the results.

Yours truly,

THE OHIO OIL COMPANY,

Wm. McTernan
Superintendent of Robinson Division

WMcT:F

If So, Write

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SYRACUSE, N. Y.

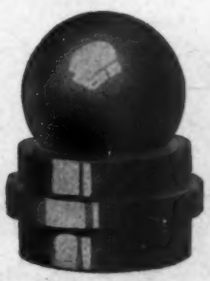

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TABLE I—SHOWING GENERAL DATA ON PLANTS THAT RECOVER GASOLINE FROM UNCONDENSED STILL VAPORS

1	2	3	4	5		6	7	8	9	10	11
				Exhauster						Gasoline recovered	
Index	Nature of Refinery	Nature of Crude	Type of Scrubber for Removal of Sulphur	Sulphur Content	Type	Vacuum carried—ins. of water	Type of Recovery Plant	Crude Charged per day (bbls.)	Cu. ft. of Gas per day	Gas per day (gals.)	per bbl. of Crude Charged (gals.)	Pct. of Crude Charge
1	Complete	Mid-Cont.	Lye	High	Rotary	4	Compression	20,000	3,500,000	14,500	.72	1.71
2	Complete	Mid-Cont. Mexican Penn.	Lye	Very High	Rotary	1	Compression and Absorption on Residue	13,246	1,382,977	11,203	.84	2.00
3	Complete	Mid-Cont. Mexican Penn.	None	Very High	Rotary	6-8	Absorption in Gas Oil	25,000	5,000,000	12,000	.48	1.14
4	Complete	Mid-Cont. Mexican Penn.	Iron Oxide	Very High	Rotary	2	Compression and Absorption on Residue	40,000	2,560,000	14,100	.35	.83
5	Complete	Mid-Cont. Illinois Ohio	Lye	High	Rotary	3	Absorption in 50° Naphtha	40,000	5,600,000	16,000	.40	.95
6	Skimming and Lubricating	Mid-Cont.	None	Low	Intake on Compressor	1	Compression	10,000	700,000	4,200	.42	1.00
7	Skimming and Lubricating	Mid-Cont.	None	Low	Intake on Compressor	1	Compression	4,240	350,000	2,780	.65	1.55
8	Complete but no Asphalt or Coke	Wyoming	None	Low	Rotary	1½	Absorption in 50° Naphtha	30,000	875,000	7,859	.26	.62
9	Complete	Mid-Cont.	None	Low	Rotary	1	Abs. in Gas Oil, then to Pressure Still	12,000	(*)	8,000	.67	1.59
10	Complete	Electra Ranger Healdton		Low—No Sour Gas Treated	Intake on Compressor	2	Compression and Absorption on Residue	38,000	(*)	5,000	.13	.31
11	Complete	Gulf Coast North Texas La.-Mex.	None	Varies with Crude	Intake on Compressor	2	Compression and Absorption on Residue	55,000	(*)	10,000	.18	.43
12	Complete	Oklahoma North Texas	None	Rather High	Rotary	2	Compression and Absorption on Residue	33,000	6,331,000	21,000	.63	1.50
13	Complete	Mex.-La. North Texas Gulf Coast	Water Scrubbers	High	Rotary	3	Horizontal Absorber	35,000	4,000,000	2,000	.05	.12
Total								355,486		128,651	Avg., .444	Avg., 1.05

*No data on gas volume.

widely separated in a refinery of this character, the problem of installing a recovery system is much more complicated than in a skimming plant. In the latter, the gathering line takes gas only from the crude stills that are running light distillates and from the steam stills, whereas in the complete refinery the gases are obtained from crude, steam, pressure and rerun stills. This requires a much more extensive system of gathering lines, and careful provision for covering distances not met with in skimming plants. If the gases are all collected by one central exhauster, as is usually done, there is danger of too high a vacuum being held on some of the stills, while on account of the frictional resistance in long lines and the small amounts of gas produced, those stills at a greater distance may be under no vacuum at all.

The removal of sulphur is generally necessary in a refinery which uses pressure stills, because the hydrocarbon sulphur compounds are thrown down at the existing temperature and pressures. This would result in considerable trouble from depositions of sulphur, and large expenditures must therefore be made in providing scrubbers for removal of sulphur.

Effect of Atmospheric Temperatures on Condensation.—Atmospheric temperature is an important factor in the production of gasoline from uncondensed refinery vapors. It is found that during winter months, due to more complete condensation of the vapors, the production of the "gas" plant will fall off to some extent. An unusual example of this is a certain skimming plant which produces about 6,000 gallons of compression gasoline daily through the summer months, but drops to as low as 500 gallons per day in the winter. Ordinarily the difference is far less, but there is always a tendency for production to drop in cooler weather. Another factor which tends to produce this result is where the evaporation from storage tanks is picked up and recondensed. This evaporation, of course, is much greater during the summer months.

Other Governing Factors

Three other factors which determine the gasoline content of the uncondensed vapors are the nature of the still charge, the temperature of the stream, and the vacuum carried on the run-down lines.

The distillates from crude oil which has only a small amount of low-boiling fractions will condense very easily. The loss in uncondensed vapor from this type of crude is very low when compared with the losses from a crude with a very high gasoline content. Likewise, the amount of vapor remaining uncondensed during distillation in the steam still depends upon the charge. For example, a light naphtha forms more gas than a heavier distillate.

The vacuum carried on the run-down lines influences the yield of vapor, since any increase in vacuum causes a corresponding decrease in boiling points of the distillate. The vacuum carried should be as low as possible and only serve to remove the vapors formed, rather than to lower the boiling point of the charge being distilled.

The temperature of the stream is an important factor, since with an increase in the temperature of the distillate there is a corresponding increase in the gasoline content of the gas. The temperature of the stream depends in turn upon the temperature of the cooling water in the condenser and upon the rate of distillation. These two factors determine the condenser surface per gallon per hour. For light fractions the condenser surface is generally about 2 square feet per gallon per hour. If this figure is lowered the gasoline content of the vapors will become higher, and if raised the gasoline content will be lower; provided, of course, that the temperature of the cooling water is constant.

Gasoline Recoverable From Vapors

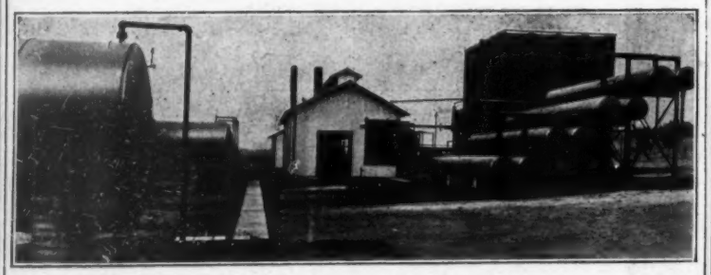
In an effort to determine as nearly as possible the effect of the temperature of the stream on the uncondensed gasoline, a series of runs was made in the Bureau of Mines experimental refinery at Bartlesville, Okla. Cushing crude of a gravity of 38.5 B. was used, with a condenser surface of 2 square feet per gallon per hour. The vapors were drawn off under a vacuum of 2 inches (of water) and collected in a small test absorber, filled with "mineral seal" oil as an absorbent.

After each test run the absorbed gasoline was distilled by the usual laboratory method. Figure 1 shows results obtained. It will be noted that the yield of gasoline from the uncondensed vapors of the crude still increases with the temperature of the stream. The gasoline content of the uncondensed vapors per barrel of crude charged to the still varies from 0.05 gallon at a stream temperature of 75 degrees F. to 1.01 gallons at 120 degrees F.

The gasoline produced from the crude still at each stream temperature shown, was redistilled in the steam still at the same stream temperature. For example, gasoline produced from the crude still at a stream temperature of 75 degrees F. was redistilled at a stream temperature of 75 degrees F., gasoline produced at a stream temperature of 90 degrees F. was redistilled at 90 degrees F., and so on. The amount of gasoline obtained from the uncondensed vapors from the steam still decreases as temperatures of stream increase. When the stream from the crude still has a temperature of, say 75 degrees F., the vapors are so cooled that little gasoline remains uncondensed. The condensate is redistilled in the steam still with the stream temperature at 75 degrees F. The vapors are much richer in high-gravity hydrocarbons than the vapors from the crude, and this results in a larger amount of vapor remaining uncondensed.

With the stream running at 90 degrees F. from both crude and steam stills the increased amount of uncondensed vapors from the crude distillation results in a lower recovery of gasoline from the uncondensed vapors of the steam still. In other words, the distillate charged to the steam still has been robbed of the lighter fractions, so the amount of vapors uncondensed in this distillation is smaller than in the previous run. As the temperature of the stream from both stills increases, the quantity of uncondensed gasoline from the steam still decreases until at 120 degrees F. practically all of the light fractions that will remain uncondensed have been taken off at the crude still condenser.

The total gasoline obtained from the uncondensed vapors from both the crude still and from the steam still as shown



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in curve 3, Figure 1. This indicates the amount of gasoline that can be recovered under like conditions in refineries operating on Mid-Continent crude.

The following information on amounts of uncondensed vapor obtained from different crudes was supplied by Franklin Stroud, Jr., of the Atlantic Refining Co., Philadelphia. Somerset and Mid-Continent crudes give approximately 4 cubic feet of vapor per barrel of crude charged, at a stream temperature of 70 degrees F., and Mexican crude, 3 cubic feet. The vapor from the two former contains 12 gallons of gasoline per 1,000 cubic feet, and from the latter, 10 gallons. The number of cubic feet of uncondensed vapor varies 3 per cent for every two degrees between 50 and 90 degrees F., which gives the following formula for this range:

$$\text{Gals. per bbl.} = \frac{A}{1000} \times \left(F + \frac{T}{2} \times .03\right)$$

Here A represents the number of gallons of gasoline per 1,000 cubic feet (12 for Mid-Continent crude and 10 for Mexican crude); F the number of cubic feet at 70 degrees F. for each crude (4 cubic feet for Mid-Continent and 3 for Mexican crude); and T the degrees difference in temperature of the stream from 70 degrees F. This gives a straight-line curve which checks the part of curve 1, Figure 1, below 90 degrees F. Above 90 degrees F this formula would not apply, since the amount of uncondensed gasoline increases more rapidly with each succeeding rise in temperature.

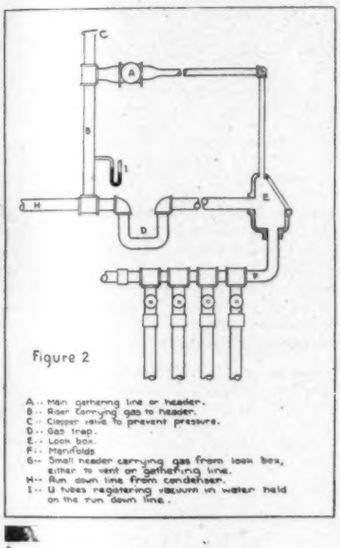

Figure 2

A.- Main gathering line or header.
B.- Riser carrying gas to header.
C.- Clapper valve to prevent pressure.
D.- Gas trap.
E.- Look box.
F.- Manifolds
G.- Small header carrying gas from look box, either to vent or gathering line.
H.- Run down line from condenser.
I.- U tubes registering vacuum in water held on the run down line.

Experimental Results of Pressure Still Distillation

On cracked gases, which include gases formed in running crude to coke, gases from pressure stills and gases from the running of pressure still distillates, Mr. Stroud gives the following: Mexican light crude, 200 cubic feet of gas per barrel charged, containing four gallons of gasoline per 1,000 cubic feet; Mid-Continent crude, 80 cubic feet per barrel with a gasoline content of 7 gallons per 1,000 cubic feet; average slop, 120 cubic feet per barrel; with 5 gallons of gasoline recoverable per 1,000 cubic feet; gas oil, in pressure stills, 140 cubic feet per barrel with a gasoline content of 3 gallons per 1,000 cubic feet, with a variation of 2½ per cent in the quantity of gas for every hour over or under 38 hours per 1,000 bbls. In tests conducted by A. J. Rodgers, of the Tide Water Oil Co., where the pressure on the still amounted to 95 pounds, 95 cubic feet of gas was obtained from each barrel charged. The specific gravity of this gas was about 0.85.

Experiments in pressure still distillation by W E Espey, of Cosden & Co., Tulsa, Okla., showed that 163 cubic feet

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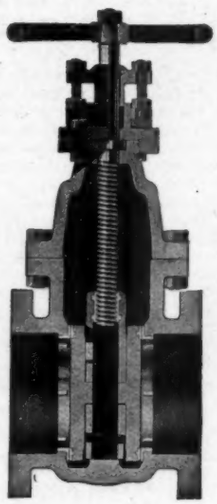

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of gas was produced per barrel of about 2 gallons per 1,000 cubic feet.

Survey of Plants Having Recovery Systems

Table 1 shows representative refineries on the Eastern Coast, Gulf Coast, in Oklahoma, Wyoming and Kansas that have installed plants for treating uncondensed still vapors. Column 10 shows that in these plants the recovery of gasoline ranges from 0.03 to 0.84 gallon per barrel of crude charged. Where the recovery value is low, several refineries do not have efficient recovery plants, and others have not been fully equipped for taking care of all the gases formed. In some it is due to the low gasoline content of the crude and to the absence of pressure stills. Others are equipped with pressure stills, but do not utilize the cracked gases because they lack equipment for removing the large sulphur content usually found in such gases.

The figures on crude charge, volume of gas and gasoline recovered are average figures, and of course, vary greatly from time to time. The greatest error probably exists in the figures for gas volumes since a number of these have been calculated from compressor displacement.

The total crude oil charged to the refineries listed in this table amounts to 355,486 bbls. a day. By treating the uncondensed still vapors in these refineries, a total daily gasoline yield of 128,651 gallons is obtained. This shows an average recovery in these plants of 1.05 per cent or 0.444 gallon of gasoline for every barrel of crude oil charged. If the gases were not treated, this amount would be lost or burned as fuel.

(To Be Continued)

NATURAL GASOLINE STATISTICS FOR 1921

Geological Survey Just Completes Data on that Year Showing a Great Gain in Production from About the Same Number of Plants As in 1920, and an Increase in the Average Yield per 1,000 Cubic Feet—Value Decreased.

The output of natural gas gasoline in 1921 increased 23 per cent over that in 1920, but the market for natural gas gasoline was rather unstable because of the depression in the petroleum industry, according to a preliminary statement by E. G. Sievers, of the United States Geological Survey, Department of the Interior. The statement is based on incomplete returns from the producers and is subject to revision. Seventy-five per cent of the output was recovered at compression plants and the remainder at absorption plants. The average daily production was 1,297,000 gallons, as compared with 1,054,093 gallons in 1920. The average production per plant in 1921 was 408,000 gallons, compared with 333,400 gallons in 1920.

A decrease in the value of natural gas gasoline was naturally produced by the breaking of the market due to the depression in the petroleum industry. The total value in 1921 was about $6,000,000 less than in 1920. The prices received by the producers declined to 8 cents a gallon, and the average price as computed from the total output in 1921 was 5 cents less than in 1920. Although the output was greater 5 per cent less gas was treated, so that the plants showed increased efficiency in 1921. The average yield of gasoline per thousand cubic feet of gas was 0.2 of a gallon greater in 1921 than in 1920.

Texas has become an active field for the natural gas gasoline industry, with an output in 1921 that was 172 per cent greater than in 1920, and occupied second place in the list of producing States. California also increased its production, but West Virginia, which was second in rank, showed a decrease and occupied fourth place.

Unblended Natural Gas Gasoline Produced in the United States in 1921

State—	Gasoline produced: No. of plants	Quantity, gallons	Value	Av. price per gal., cents	Gas used: Est. volume M cu. ft.	Av. yield of gasoline cu. ft. gals.
Oklahoma	304	195,960,900	$22,509,300	11	78,229,800	2.5
Texas	68	89,749,600	11,668,400	13	26,751,700	3.4
California	77	59,483,300	10,627,600	18	63,916,900	.9
West Virginia	204	53,557,600	9,772,100	18	135,631,300	.4
Pennsylvania	305	19,989,600	3,303,200	17	46,482,800	.4
Louisiana	28	16,420,300	1,830,200	12	46,451,700	.3
Wyoming	7	14,557,500	1,599,500	11	4,559,600	3.2
Ohio	55	10,310,000	1,996,400	19	39,861,100	.3
Illinois	89	6,358,500	919,200	14	2,992,800	2.1
Kentucky	9	4,241,900	835,000	20	16,520,100	.3
Kansas	11	3,663,000	602,900	16	7,825,800	.5
New York	4	366,200	54,000	15	203,000	1.8
Total, 1921	1,161	473,658,500	$65,717,900	14	469,426,600	1.0
Total, 1920	1,154	384,743,922	71,788,122	18.7	496,430,952	.78

Classification of Natural Gas Gasoline By Principal Methods of Manufacture

Gasoline Produced By Compression and By Vacuum in 1921

State—	Gasoline produced: No. of plants	Quantity, gallons	Value	Av. price per gal., cents	Gas used: Est. volume M cu. ft.	Av. yield of gasoline cu. ft. gals.
Oklahoma	252	175,350,200	$19,779,100	11	47,147,200	3.7
Texas	55	81,062,000	10,584,000	13	17,685,900	4.6
California	44	37,078,300	7,010,700	19	38,914,500	1.0
West Virginia	159	17,827,600	2,995,700	17	14,068,800	1.3
Wyoming	6	14,495,100	1,590,400	11	4,430,700	3.3
Pennsylvania	276	11,684,800	1,720,700	15	4,857,100	2.4
Louisiana	15	7,158,700	724,000	10	2,594,500	2.8
Illinois	89	6,358,500	919,200	14	2,992,800	2.1
Ohio	42	2,188,800	318,000	15	1,043,500	2.1
Kansas	8	1,580,000	300,100	19	793,400	2.0
New York	4	366,200	54,000	15	203,000	1.8
Kentucky	6	196,700	38,300	19	87,100	2.3
Total, 1921	957	355,346,900	$46,038,200	13	134,817,404	2.4
Total, 1920	967	281,131,973	50,272,961	17.9	112,887,802	2.49

Gasoline Produced By Absorption in 1921

State—	Gasoline produced: No. of plants	Quantity, gallons	Value	Av. price per gal., cents	Gas used: Est. volume M cu. ft.	Av. yield of gasoline cu. ft. gals.
West Virginia	45	35,730,000	$ 6,772,400	19	121,562,700	.3
California	33	22,405,000	3,616,900	16	25,002,400	.9
Oklahoma	52	20,610,700	2,730,200	13	31,082,600	.7
Texas	13	8,687,600	1,084,400	13	9,066,700	1.0
Pennsylvania	29	8,304,800	1,582,500	19	41,625,700	.2
Louisiana	13	8,261,600	1,106,200	13	43,857,200	.2
Ohio	13	8,121,200	1,678,400	21	38,817,600	.2
Kentucky	3	4,045,200	796,700	20	16,433,000	.2
Kansas	3	2,083,000	302,800	15	7,032,400	.3
Wyoming	1	62,500	9,200	15	128,900	.5
Total, 1921	204	118,311,600	$19,679,700	17	334,609,200	.4
Total, 1920	187	103,611,949	21,515,161	20.8	383,543,150	.27

Oil Pollution of Waters Again Cause of Agitation

WASHINGTON, D. C., May 29.—There have been numerous conferences and some discussion in committee meetings recently in respect to the passage of legislation by Congress to prevent the pollution of navigable waters by the throwing overboard of oily refuse, by leakage of oil tanks and pipe lines and various other ways. Bills for this purpose have long been pending in Congress, and in the last Congress a bill was reported from the Rivers and Harbors Committee of the House of Representatives.

The Appleby bill before the House Committee on Rivers and Harbors and the Frelinghuysen bill before the Senate Committee on Commerce are the two measures that appear most nearly to have the approval of proponents of this legislation. The Appleby bill provides against the contamination by any kind of oil, fuel oil, oil sludge, or any other oil refuse, of any navigable waters of the United States or tributary of any navigable water from which the same shall float or be washed into such navigable water. The Appleby bill provides for the violation of this act fines from $500 to $1,500 and imprisonment from one month to one year.

Tank steamers, pipe lines, all sorts of vessels using fuel oil, oil tanks and various other sources of oil refuse are given as the cause of the nuisance complained of. Thrown overboard within the three mile limit in New York Harbor and along the Jersey coast this oil sludge destroys the pleasure of bathing, and such refuse overboard in harbors or rivers kills fish and befouls everything with which it come in contact.

Failure to agree upon the terms of a bill has heretofore blocked any legislation to prevent the pollution of navigable waters. There has been strong opposition to any measure that has been proposed. C.E.K.

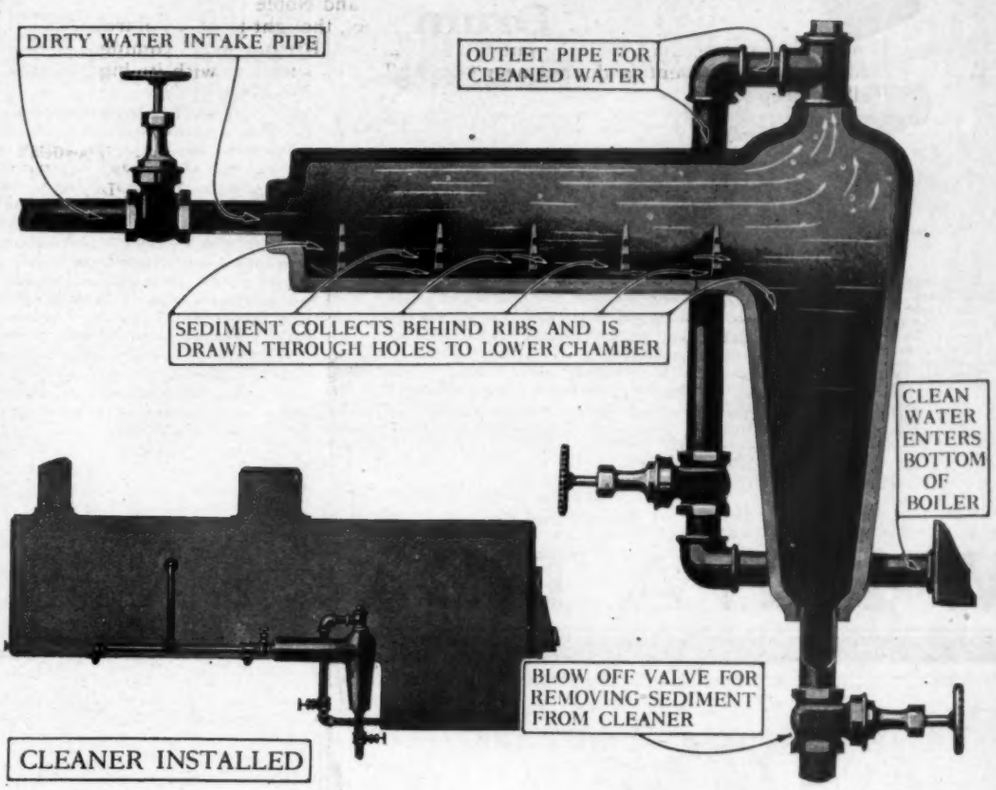
SUGGESTS A CORRECTION

In connection with the story on "South America May Yet Lead in Oil," reproduced from "The Lamp," the house organ of the Standard Oil Co. of New Jersey, parenthetic reference was made to the Magnolia Petroleum under a paragraph devoted to the New England Oil Corporation, the parenthetic reference indicating the companies were inter-allied. John B. Shrarer writes from New York that the New England Oil Corporation has no connection with the Magnolia Petroleum Co. He says in part: "You are presumably referring to the New England Fuel Oil Co. when you mention Magnolia, but neither does the New England Oil Corporation have anything to do with the New England Fuel Oil Co., except to purchase some oil from them at Panuco. The New England Oil Corporation is a corporation owning the New England Oil Refining Co. at Fall River, Mass."

PROPOSED SPECIFICATIONS TO BE DISCUSSED SHORTLY

WASHINGTON, May 21. — The interdepartmental petroleum specifications committee, representing the War, Navy, Treasury and Interior Departments, will hold an open meeting on July 3, at 9 a. m. in the auditorium of the Interior Department Building, to discuss the recently adopted specifications for petroleum products. The Bureau of Mines drew up the new rules, but they have not yet become effective and the open discussion is invited to determine if they meet all demands. The new specifications are explained in detail in Technical Paper No. 298, of the Bureau of Mines, and to permit all parties interested in being familiar with them, the Government printing office has just published a large volume of them.

Doubles the Life of Your Boilers


DIRTY WATER INTAKE PIPE
OUTLET PIPE FOR CLEANED WATER
SEDIMENT COLLECTS BEHIND RIBS AND IS DRAWN THROUGH HOLES TO LOWER CHAMBER
CLEAN WATER ENTERS BOTTOM OF BOILER
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The HOSTETLER BOILER CLEANER solves this dirty water and sediment problem. All the water which enters the boiler passes through this appliance, and a glance at the picture will show how the dirty water is cleansed.

The HOSTETLER BOILER CLEANER will double the life of your boiler. It will save many times over its cost to you. It is positively guaranteed to be effective. Write today for further particulars.

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THE BRISTOL COMPANY
WATERBURY, CONN., U. S. A.

OIL ROMANCE OF THE WYOMING FIELDS

(Continued from Page 14)

primitive land given over to great herds of cattle and bands of sheep. In the latter part of the eighties, the sheep and cattle owners engaged in the famous cattle wars of this region which lasted well into the late nineties when definite arrangements were made, giving certain ranges to each kind of animal. The Union Pacific was the only artery of travel across the continent, neither the Chicago and Northwestern nor the Burlington lines had yet been started and a lone little station on the single track of the Union Pacific was often the rail point for a region larger than the whole State of Pennsylvania.

Fields Far From Railroads

This condition still exists to some extent here and it is due largely to the same that the expense of operation in this region is so heavy on the oil company treasuries. Powder River, a typical rail point, is at present the station for an area of hundreds of square miles and many oil fields far out on the plains haul their equipment and goods from here—Boone Dome, Pine Mountain, Poison Spider, Oil Mountain, Virginia Dome and others are in the Powder River area. When the roads are good in summer, Casper becomes the rail point for many of these fields because in the present day of the auto truck, it is an easy matter to reach a distant point if good roads lead to it.

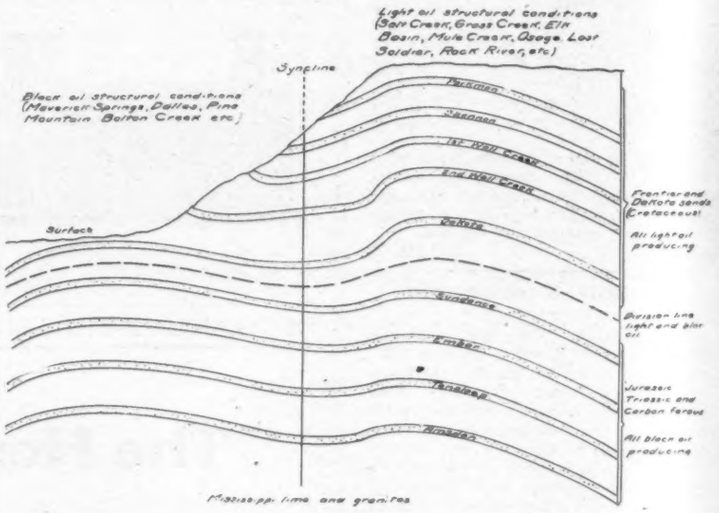
Westward from Powder River a few miles lies the famous Hells Half Acre, a spot of about a square mile in area where the erosion of the past centuries has cut deep gulches through the shales of the Fort Union formation which is made up of red, blue, gray and other colored shale beds. Its deep gulches are well sheltered from the night winds that sweep the plains and therefore it is often a camping point for the oil scout on horseback with a pack horse, or the ordinary plains traveler and it is indeed a weird experience to spend a night in that place under the bright summer moon.

Casper is the prize baby of Wyoming, although the other cities of the State tinge their comments a little over the too-sudden growth and predict a sudden collapse. Casper has risen in about 10 short years from a small cow town to a city of paved streets, large business blocks and beautiful homes. Due to weather conditions, most of the houses in this region are of the bungalow type and this feature has tended to make Casper City a vista of doll-like homes lining spacious asphalt streets. It is quite different from the single street of frame shacks that was the Casper of 1890.

Large Refinery at Casper

West of the business district of Casper is the great refining plant of the Standard Oil Co. of Indiana. Seven years ago, this place, marked by a forest of concrete chimneys, was a waste of sage brush and sand, inhabited by prairie dogs and rattlesnakes. Now it has changed to the converging point of a multitude of crude oil pipe lines that bring in the oil from the far-distant fields and from whence the refined petroleum products go to every quarter of the globe.

Here the crude oil is boiled in the great stills and changes from a viscid dark fluid into the light oils, lubricants, greases, waxes and other products that the world calls for. A barrel of crude may come in by pipe line or tank car from up near the foothills of the Continental Divide of the Rockies and part of its fractionation go to drive a motor car in New York City, its lubricating content to England's spinning mills, its medicinal oil to some sanitarium in sunny California, its paraffin wax as a candle to a miner's camp amid the snows of Alaska and its heavy grease to oil the wheels of a South American railroad while the refuse fuel oil may refine copper in Africa. And in between these divisions are a thousand and one uses for the divisions of the barrel each of which call for a part of the original crude and composed of only two chemicals, hydrogen and carbon, yet each division having a little different division in the molecules.


Light oil structural conditions (Salt Creek, Grass Creek, Elk Basin, Mule Creek, Osage, Lost Soldier, Rock River, etc.)
Syncline
Black oil structural conditions (Meeteetse Springs, Dallas, Pine Mountain, Bolton Creek etc.)
Surface
Frontier and Dakota sands (Cretaceous)
All light oil producing
Division line light and black oil
Jurassic Triassic and Carbon forms
All black oil producing
Mississippi lime and granites

Ideal Section of Two Domes showing Light and Heavy Oil Stratification

Fig. 1

Even in the pioneer days of the oil industry back in the hills along Oil Creek in Northwestern Pennsylvania, the wild life of that region had nearly passed on when the Drake well came into being. The famous Bucktail regiment from the Keystone State marked the last of the big game hunting there until the game wardens came into being to keep the few last remnants of the forest dwellers from utter extinction.

Still Plenty of Game

In Wyoming the desert and mountains still support their primeval wild folk in spite of the heavy inroads by the white man. It is no great feat to leave Casper City in the morning and return by nightfall with the limit of two deer. A week up in the higher mountain ranges on the Continental divide will usually yield the hunter his elk and big horn sheep, every mountain stream of any size has an abundance of trout and the sage hens on the plains can readily be killed with stones if the traveler happens to run out of ammunition. Oftentimes, on winter nights, people living in Casper City on the outskirts of the town can hear the howl of the coyotes and in the win-

ter months, up in the Wind River country and all over the higher mountains, may be heard the long howl of the true lobo, the grey wolf or buffalo grey that once contested the right of domain with man in this country. It is an odd feeling when the grey wolf calls, in spite of long experience, old guides and trappers say that a chill runs up the spine in their bodies the same as in the veriest tenderfoot. However, the lesson of the fear of man has been learned by all the wild folk and except for the porcupines, the great pine forests on the mountain flanks are empty to the occasional traveler. On the plains, however, the prong horn and coyote are still to be seen almost any time and in certain districts there are still some small herds of buffalo at large.

To this great expanse of emptiness that allows the wild creatures to live in apparent security, is due in no small way, the heavy cost of operation and development to the oil operator or firm. Back in the civilized eastern fields, the oil man will hold up his hands in surrender if he is asked to develop leases 25 miles from a rail point; out here a haul of 100 miles is nominal. With about four exceptions every field in this region is a long haul from the railroad.

So much for the cost in getting to-

Batteries of stills at Casper refineries.

Typical oil field camp: Kasoming home camp at Salt Creek.

Salt Creek is 50 miles, Grass Creek, Elk Basin and Lance Creek are from 30 to 40 miles, Lost Soldier and Ferris are 40 miles or more. This makes for excessive haulage costs before even the rig for a test is built.

Housing Workers a Problem

Then comes labor. Back in the effete east, the oil worker can usually find board at the nearest farmer's house. Out here the farmer is nix. He simply isn't, nor anyone else that might take his place as a home maker for the field crews. So the operator must first of all build his workers a small town and furnish it with food stuffs to stand a seige, for that is exactly what may come about when the winter drifts close the roads for weeks on end. Also the old-time shack with its cracks that provided ventilation with all the doors tight, is no longer sufficient. A modern field camp today has well-built houses, plumbing, gas and electricity, sewerage and above all, a chef and a larder filled with the best the markets afford.

When one of the first wells was drilled in the Salt Creek Field, the crew slept in their blankets spread on the bare ground, cooked their own meals over a sage brush fire and shot their meat during odd moments for the following day's meals. The well was completed but it is doubtful if the present day workers would put up with such hardships working for another, for day wages. The pay has risen to about double what it was in those days and the really good driller or tooldresser is singled out for advancement and higher pay in order to keep him on the job.

Added to the high overhead costs for haulage from the rail point to the field, the wages and upkeep of the workers and camp, is still another item that figures largely in all undertakings of consequence in this region; that is the freight rate. The manufacturing centers are far removed from the Rocky Mountain oil region and in consequence all supplies are taxed about all the traffic will bear to bring same from the point of manufacturere to point of delivery to the trucks. Practically all the oil well supplies come here from the eastern steel mills in Pennsylvania and Eastern Ohio. A little comes from Oklahoma and the south and also some comes up from California, but not enough to cut any figure in the general total. All pipe and casing comes from the eastern mills, though some second-hand stuff has been shipped in from the Mid-Continent fields.

Cost of Development Work

Today, in Wyoming, there are 15 light oil structures, producing or capable of producing paraffin base crudes on a par with Pennsylvania oils, the daily production is about 78,000 bbls. now, with several fields shut down and others running only a portion of the oil. The potential production of Wyoming's light oil fields is about 180,000 bbls. per day.

The cost of development of these 15 light oil fields to date is about $62,872,500, which takes in the cost of edge wells, classing the latter as producers except where no oil whatever was found in the hole.

Besides these 15 light oil fields, there are seven black oil fields with a daily production now of 425 bbls., a potential production of 3,750 bbls., a development cost of $3,448,560 and four fields shut down.

There are 14 gas fields now producing in Wyoming and in some instances these gas fields also produce oil so that it is rather hard to differentiate between the two classes. The cost of these gas fields to date is $4,635,000.

Besides the above listed fields, there gether an outfit and preparing to drill a well either in a proven area or in a wildcat location.

THE SHEARER PORTABLE STEAM HAMMER

Saves Time, Saves Steel, Saves Labor, Saves Money

Used in all oil fields, both foreign and domestic, for dressing bits and reamers, also all rotary bits. More work done in one heat with Hammer than in three heats using sledges. Weight, 1,200 pounds.

Practically no wear out to them. Many have been in constant use for nine years. When equipped with one, all makeshifts are done away with and you possess a tool that keeps the bits in perfect shape, with good heavy lugs and straight face.

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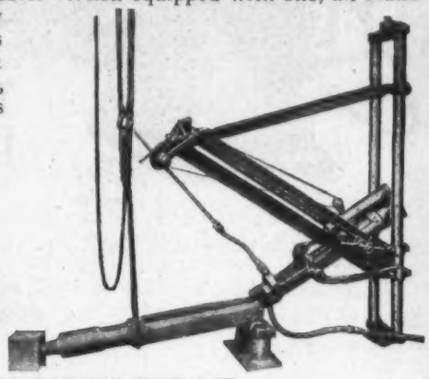

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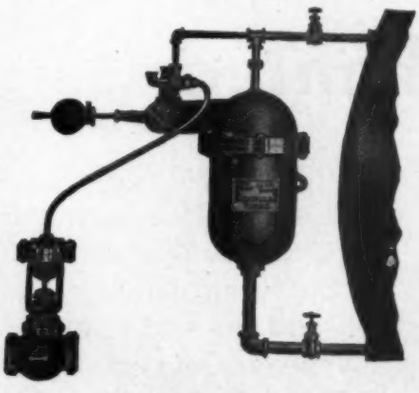
Automatic Regulation of the Oil Supply in Absorber Tanks



In the process of the manufacture of Gasoline by absorbing the gasoline in oil and subsequently separating the gasoline from the oil by distillation, it is necessary to maintain a constant oil level in both the absorbing tank and the still.

For this purpose, we offer The Vigilant Oil Level Regulator, which will accommodate itself to any type of absorber or steam still, and maintain a constant oil level under all conditions of temperature and pressure.

All of the new features embodied in the Vigilant Feed Water Regulator, which we invented and placed on the market twenty-five years ago, are to be found in the Vigilant Oil Level Regulator.

The regulator is mounted on the side of the tank, so that the center of the chamber is opposite to the oil level desired.

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Absolutely fire and explosion proof. Can be used around any inflammables, gas, chemicals, gasoline or explosives.

Delta gives light continuously by the hour—gives three times more light than Flashlight.

It does heavy duty and stands hard knocks.

Retails $2.75 (less batteries). If your supply house cannot supply you, order direct.

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Wanted:

Crude 20-23 gravity with heavy lubricating content located Kansas or Arkansas but would consider Texas or southern Oklahoma. Offer regular market and shipment in purchaser's tank cars.

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are also seven structures where oil in commercial quantities is known to exist, but due to lack of capital, financial troubles due to stock selling campaigns or other like causes; the development has not progressed far enough to obtain a clear idea of what these fields will do eventually. The potential production of these fields is estimated at 21,000 bbls. daily and this is considered conservative. The cost to date as near as could be figured, is $1,778,600.

Midwest Paid Most

Now, as to the cost division among the companies operating in this region. The Midwest Refining Co. easily leads all with a total expenditure of $22,768,480 as paid out for the drilling of wells on successful structures. The Ohio Oil Co. comes next with $18,342,660 expended in the development of successful structures; then the Kasoming Oil Co. with $2,230,000; Producers and Refiners, $1,456,900; New York Oil Co., $1,340,000; The Texas Co., $1,322,720; General Petroleum, $1,320,500; Sinclair Oil Co., $254,000; Carter Oil Co., $308.000; Union Oil Co., $120,000; and the Inland Oil & Refining, $150,000. The rest of the firms operating in Wyoming are listed as miscellaneous and show a total of $4,650,000.

The above figures are for successful development only, no dry holes are considered. The following figures give an approximate expenditure by each firm on dry holes where the whole amount was a total loss or nearly so: Ohio Oil Co., $2,437,654; Midwest Refining Co., $1,976,000; Kasoming Oil Co., $658,000; Inland Oil & Refining Co., $535,000; The Texas Co., $1,387,530; Producers & Refiners, $511,000; Associated Oil Co., $445,000; Carter Oil Co., $360,000; Empire Gas & Fuel, $210,000; Union Oil Co. (Calif.), $1,200,000; Standard Oil of California, $322,090; Cosden Oil & Gas Co., $110,000; Gypsy Oil Co., $52,330, and miscellaneous companies, $10,947,690.

Operations Now Scientific

The above figures are conservative and probably represent a sum under the true expense figures, but for practical purposes the above may be taken to give an idea of the vast sums that have been spent here to develop this region as regards its petroleum resources. The old-time methods of hit and miss are no longer employed except by a few of the smallest organizations. When an area is to be prospected, the geologist is the first explorer, then the surveyor to locate the claims with definite precision. Many suits now in the courts and wells drilled on adjoining tracts have taught the operators to make use of the engineer rather than run the risk of drilling a well gratis for neighbors.

After the tracts are located definitely and approved, along comes the camp builders who are often the rig builders also, then the tools and the drilling crew.

Considerable attention is now being directed to some new method of drilling wildcat wells. The diamond drill is coming in for considerable investigation and it is expected to be given a definite trial in the near future in this region. One of the heads of a large firm operating in this region figured recently that a wildcat well which cost that company close to $150,000 and which was drilled about 3,500 feet in solid rock all the way, could have been drilled for $25,000 by the diamond drill method and given the same information as was obtained by the use of the regular churn drilling tools. However, due to much of this area being stratified with thick shale beds, fissured and faulted, the oil operators as a whole do not consider that the diamond drill will be successful.

A. P. I. Analysis of Petroleum Statistics

According to the American Petroleum Institute's analysis of complete official petroleum statistics for March, 1922, there was an excess of domestic production and imports over indicated total consumption including exports amounting to 15,710,058 bbls. for the month, or at an annual rate of 184,973,240 bbls., compared with an excess production for the previous month of 12,326,491 bbls., or at an annual rate of 160,684,680 bbls., and an excess production for March, 1921, of 8,369,921 bbls., or at an annual rate of 98,548,905 bbls. The analysis which takes into consideration changes in pipe line and trunk farm crude oil stocks, in crude and liquid refining stocks held at refineries and in stocks of Mexican oil held in the United States, follows:

PRODUCTION AND CONSUMPTION OF PETROLEUM, EXCESS AND ANNUAL RATE OF EXCESS OF PRODUCTION AND CONSUMPTION
(Barrels of 42 gallons)

	*Feb.,1922	March,1922
Domestic crude oil production	40,814,000	46,916,000
Imports, all oil	12,428,075	14,315,176
Total production and imports	53,242,075	61,231,176
Annual rate of domestic production and imports	694,048,595	720,947,635
Increase of pipe line and tank farm crude oil stocks	10,487,000	10,045,000
Increase of crude and liquid refined stocks at refineries	†296,509	4,428,058
Increase of Mexican stocks in United States	2,136,000	1,237,000
Net increase of all stocks	12,326,591	15,710,058
Indicated consumption	40,915,584	45,521,118
Annual rate of consumption	533,363,915	535,974,395
Excess of production	12,326,491	15,710,058
Annual rate of excess of production	160,684,680	184,973,240

* Revised. † Decrease.

The annual rate of excess production over consumption of petroleum east of the Rockies was 169,575,350 bbls. of March, compared with 137,276,500 bbls. for the previous month, and 74,729,005 barrels for March, 1921.

Exports and Indicated Domestic Consumption

Exports of all petroleum to foreign countries and to non-continguous territories of the United States totaled 6,568,966 bbls. in March, 4,920,831 bbls. in February, and 5,666,440 bbls. in March, 1921. The indicated domestic consumption of petroleum and liquid products was 36,332,129 bbls., in March, as compared with 33,572,004 bbls. in February and 37,106,837 bbls. in March, 921. The excess of domestic production over indicated domestic consumption was 10,583,871 bbls. in March, compared with 7,241,996 bbls. in February, and 3,798,163 bbls. in March. 1921.

Production and Wells

Domestic production of crude oil totaled 46,916,000 bbls., a daily average of 1,513,419 bbls. in March, compared with 40,905,000 bbls., a daily average of 1,319,516 bbls. in March, 1921. There were 1,322 producing oil wells completed in March, against 1,143 in February and 1,450 in March, 1921. Producing oil wells completed east of the Rockies in March totaled 1,264, against 1,098 in February and 1,384 in March, 1921.

Imports

Imports of all oil into the United States in March totaled 14,315,176 bbls., a daily average of 461,780 bbls., in February, 12,428,075 bbls., a daily average of 443,860 bbls., and in March, 1921, 12,701,019 bbls., a daily average of 409,710 bbls.

Pipe Line Crude Oil Stocks

Pipe line and tank farm crude oil stocks as of March 31, totaled 201,516,000 bbls., an increase of 10,045,000 bbls.

over stocks at the end of February, while February stocks increased 10,487,000 bbls. over the preceding month.

Gasoline

Production of gasoline in March was 11,244,711 bbls., compared with 9,481,503 bbls. in February and 9,995,128 bbls. in March, 1921. Stocks March 31 were 20,338,849 bbls.; February 28, 19,223,316 bbls., and March 31, 1921, 16,977,226 bbls. Exports in March were 1,294,152 bbls, in February, 919,261 bbls., and in March, 1921, 1,144,122 bbls. The indicated domestic consumption of gasoline in March was 8,835,026 bbls., in February, 6,141,573 bbls., and in March, 1921, 8,077,122 bbls.

Kerosene

Production of kerosene in March was 4,256,786 bbls., in February, 3,981,434 bbls., and in March, 1921, 4,029,711 bbls. Stocks March 31 were 7,653,042 bbls.; February 28, 7,891,027 bbls., and March 31, 1921, 10,627,790 bbls. Exports in March were 1,951,458 bbls., in February, 1,493,129 bbls., and in March, 1921, 1,553,643 bbls. The indicated domestic consumption of kerosene in March was 2,543,313 bbls., in February, 2,394,523 bbls., and in March, 1921, 2,087,449 bbls.

Gas and Fuel Oil

Production of gas and fuel oil in March was 20,216,800 bbls., in February, 18,121,079 bbls., and in March, 1921, 18,055,588 bbls. Stocks March 31 were 29,768,518 bbls.; February 28, 31,466,416 bbls., and March 31, 1921, 23,936,141 bbls. Exports in March were 1,648,526 bbls., in February, 1,230,698 bbls., and in March, 1921, 1,837,412 bbls. The indicated domestic consumption of gas and fuel oil in March was 20,266,172 bbls., in February, 16,840,188 bbls., and in March, 1921, 15,927,924 bbls.

Lubricating Oil

Production of lubricating oil in March was 1,747,411 bbls., in February, 1,645,795 bbls., and in March, 1921, 1,738,174. Stocks March 31 were 5,640,152 bbls.; February 28, 6,037,330 bbls., and March 31, 1921, 5,319,383 bbls. Exports in March were 814,953 bbls., in February 564,536 bbls., and in March, 1921, 353,771 bbls. The indicated domestic consumption of lubricating oil in March was 1,329,636 bbls., in February, 882,750 bbls., and in March, 1921, 865,676 bbls.

TOO MANY COMBINATIONS IN THE SIZES OF CASING

The discussion about standardizing the threads on casing, which has been under way among producers, purchasers and manufacturers for some months, has accomplished one point on which there is almost 100 per cent unanimity of thought. It is this:

There are entirely too many combinations of sizes and weights of casing. The Book of Standards shows 81 combinations in use in the Mid-Continent fields, and a total of 113 in the American oil fields.

There are no drilling conditions in the world, drillers say, which calls for more than seven strings of casing. Dividing all wells into three classes—shallow, medium and deep—and considering drilling conditions as a factor, as well as actual depth, only a maximum of 17 combinations of sizes and weights would be required. In making allowances the expert drillers say that the three largest sizes of casing would be required in only one weight, and the smallest size in but two weights.

Information was received in Tulsa early this week that the interests of the pipe manufacturers in the "movement towards standardization" will be looked after by the American Petroleum Institute, and those of the producers by the Mid-Continent Oil & Gas Association, both organizations receiving the wholehearted support and co-operation of the Mid-Continent section of the American Society of Mechanical Engineers and the Purchasing Agents Association of Oklahoma.

CLASS WELLS AS IMPROVEMENTS

LITTLE ROCK, Ark., May 29.—Governor T. C. McRae has advised the tax assessor of Union County, in which the El Dorado oil field is situated, that oil and gas wells should be assessed as improvements and that oil and gas leases should be taxed. The assessor reported to the governor that property valuations in Union County have increased only about $2,000,000 on the tax rolls, whereas the governor believes that the figures should be much larger and that county revenues should be correspondingly larger. The governor quotes from a law that authorizes the assessor to assess mineral rights in lands separate from the general property, when the mineral title is held by persons other than the owner of the fee title. W. F. K.

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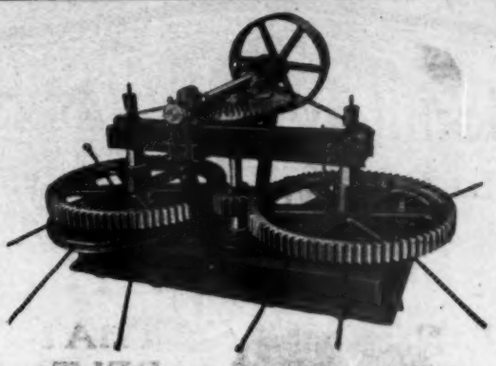

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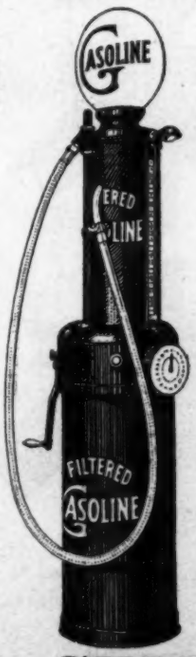

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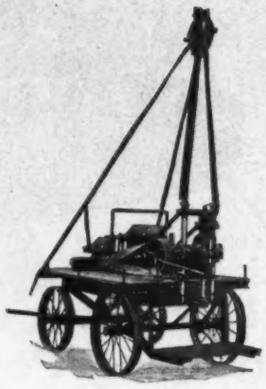

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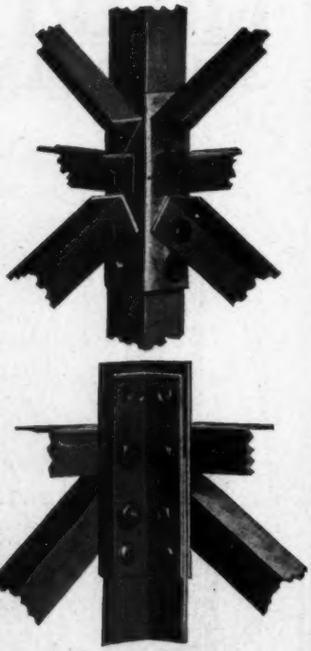

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1½-Inch Bit Drilled Kentucky's First Well

BOWLING GREEN, Ky., May 27.—E. L. Perry, of the Department of Geology at the University of Kentucky, in writing of the early history of oil wells in the United States says the first well drilled in solid rock was in 1808. Oil was encountered in drilled wells in 1819 and 1820, according to Perry, while drillers were prospecting for salty brine. He adds, however, that the Drake well in Pennsylvania was no doubt the initial exclusive test for oil.

His review of the early days in petroleum in the United States follows:

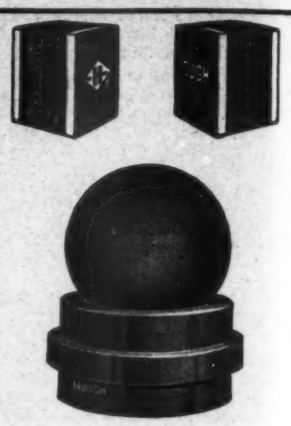
Perhaps of these earlier encounters with petroleum over a hundred years ago, a well drilled by Martin Beatty, a Virginia iron furnace operator, is of most interest. Beatty, who had purchased considerable acreage on the Big South Fork of the Cumberland River, decided to drill a well for the "Benefit Sault," and located the hole one-half mile above the mouth of Bear Creek. At a depth of several hundred feet the drillers were greatly surprised when a dark, greasy substance began to flow from the hole into the river and spread itself out over the surface of the water. The presence of the oil fluid was a disappointment, since the operator was prospecting for salt brine and consequently the test was abandoned as a failure. However, the oily fluid, which of course was petroleum, was different from anything ever seen by the natives, and the thrifty housewives along the river, who helped support their families by the sale of goose feathers, gave it the rather unique name of "Devil's Tar." The geese frequenting the river below the well became so covered with the oil that the income from the sale of feathers was cut off.

Liquid Sent to London

The nature of this oil fluid induced much speculation. Finally, a Dr. White of Burkesville, desiring expert advice as to the composition and uses of the material, secured a barrel full of the liquid and addressed it to a noted chemist, in London, Eng. The barrel was floated by boats down the Cumberland, Ohio and Mississippi Rivers, to New Orleans and then sent across to England. About this Mr. Bagby, said that "upon reaching its destination, the custom house officers were unable to describe it to the proper authorities and after consulting with the city fathers decided that this lonesome and unfamiliar visitor from the far west could not be carried ashore and so the barrel was taken out into the English Channel and destined to a watery grave.

For over 65 years the Beatty well either emitted oil, or the oil stood within 10 feet of the top. The natives collected it in buckets and barrels and used it for a lubricant, for artificial light, for oiling their hogs and cattle, and "for croup among the children."

Probably if the noted chemist in London had secured the unfamiliar visitor, one of the world's greatest industries would have been started half a century sooner. But as it happened the hidden value of this at first unwelcome "trouble causer," was not to be made known until after 25 years. In 1850 James Young, an Englishman, found that paraffin, which substance had been discovered 20 years earlier by a German chemist, was highly adapted to candle making and he also found that it could be obtained by distilling oil from oil seeps occuring in Derbyshire, Eng. The amount of oil to be had there was very limited and in searching for other sources for paraffin it was found to be present in a waxy distillate from cannel coal of Scotland and later oil shales were also distilled for paraffin. The new industry grew and spread from England to America. A plant to distill cannel coal was erected at Cloversport, Ky., and another plant to distill oil shale was operated at Vanceburg, Ky. In 1866 Professor Sillman, of Yale University, made a detailed in-



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vestigation of the crude petroleum that came from oil springs and which was being encountered in salt wells and he discovered that paraffin could be obtained more economically from it than from distilling coal or shale. It was this discovery of Professor Sillman which led to the drilling of the Drake well. At this time the waxy residue was all that was wanted.

Wells Near Burkesville

Another very interesting example of these first early encounters with oil wells is the well drilled in 1829 near Burkesville, Cumberland County. This well, as all others at that time, was drilled with the hope of securing salt brine. At a depth of about 186 feet the drilling tools are said to have been lifted from the hole by the force of the gas, and oil was thrown to the tops of the surrounding trees. The oil from the well, which flowed continuously for over three weeks, made its way into the Cumberland River and floated down on the surface of the water for 50 miles, or as far as Sumner County, Tennessee. Finally the oil on the water became ignited and the river was actually turned into a "river of fire"—a most remarkable spectacle. Strangers visiting the neighborhood might well have thought that the final reckoning was at hand, and no doubt an evangelist would have done excellent business at that time and place.

The same enterprising Dr. White of Burkesville, bottled this oil in pint bottles, called it "American Oil," highly recommended it for its great medicinal virtues, and sold large quantities of it throughout the United States and Europe. As a return for his efforts these small bottles of "Medicine" brought him $60 a gross.

The first gas well on record was drilled in 1815 by Captain James Wilson near Charleston, W. Va., while prospecting for salt water. The first oil to be encountered in Pennsylvania in drilled wells was in a well drilled by S. M. Kier and his father in 1839 on the bank of the Alleghany one mile above Tarentum, Pa. This well first flowed salt water for some months, then came oil and salt water mixed. A well on the adjoining farm of Lewis Peterson about the same time produced even more oil. Of course oil seeps had long before been known in Pennsylvania.

The first well ever to be drilled was completed by the Ruffner Brothers, of Charleston, W. Va., in January, 1808, after 18 months of effort. Their well, which was drilled 40 feet through hard rock, was successful in that they struck the flow of salt water which they were after. In drilling their well they invented and constructed their own machinery, and it is from their beginning that the great industry of well drilling originated. Two and one-half years after the Ruffner well was finished, that is in September, 1810, a Mr. Colquohoun reached a depth of "150 feet through solid rock with an inch and a half auger," at Big Stone Lick in Kentucky. This is probably the first well to be drilled in Kentucky.

BOLSHEVIST PAPER'S VIEWS ON OIL QUOTED BY RUSSIANS

LONDON, Eng., May 24.—A communique issued here today by the Russian trade delegation quotes the Bolshevist official newspaper, Izvestia, of Moscow, as declaring "petroleum played the leading part in the Genoa conference, bringing about scenes which were caused chiefly through Rockefeller's intervention."

"The second act of the petroleum tragi-comedy will be continued at The Hague," the newspaper continued. "Other questions like the recognition of private property were only secondary matters as compared with petroleum at Genoa. Russia was an amazed onlooker in this scramble among the petroleum imperialists. The Azerbaijan petroleum is firmly in our hands and the oil trusts will soon apply to us and not we to them."

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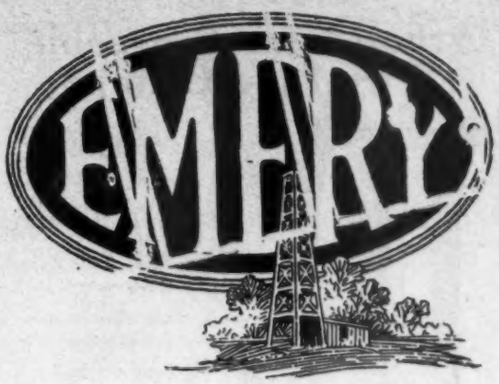

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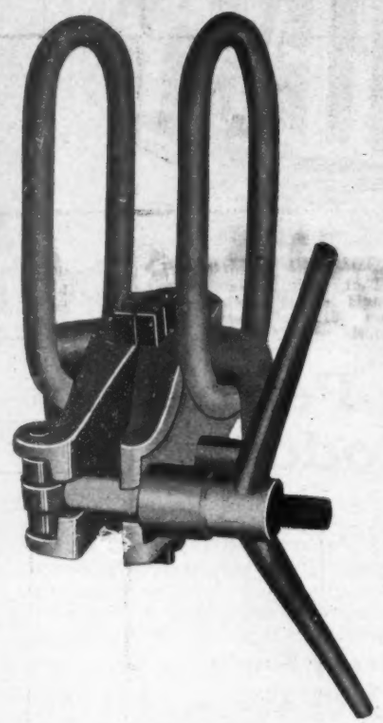

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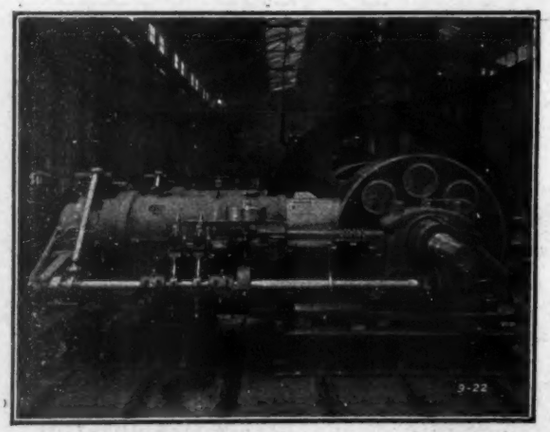

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THE SEA IS FUEL OIL'S UNRIVALED FIELD

(Continued from Page 10)

room of the Texas Co.'s oil tanker Illinois fitted with Peabody-Fisher burners. Although the types of boiler used in the Leviathan and other big vessels differ, the principle of oil-burner installation is the same. The photograph shows three burners placed at the bottom of the boiler, in place of the furnace doors through which coal would have to be passed by human labor if coal were being used, instead of oil. In the case of the Leviathan the Schultz-Thornycroft boiler is used, and there are five burners on each boiler, instead of three.

Land Installations Big Field

Although more attention has been given to oil-burning apparatus for ocean-going vessels in this article, the field for land installation is said to be much larger, and this is the field which engineers are now striving to open up. Land installations differ from ship installations, as more freedom is possible in the former. On land, plenty of fresh water for spraying is available, and therefore there is not so much need to economize on this item. As a result, the mechanical atomizer is used on ships, while steam and air atomizers can be used in land installations.

The steam atomizer is a low pressure atomizer and requires 3 to 5 per cent more fuel than the mechanical atomizer. The air atomizer uses compressed air and is slightly wasteful besides the fact that compressed air engines occupy additional space and put additional weight on the ship.

Engineers are perfecting oil-burning apparatus for land installations, and as a result oil is gradually replacing coal in certain types of furnaces. The advantages of oil over coal are generally appreciated, and need no emphasis here.

Another branch where the perfection of oil-burning equipment will mean an enormous gain in consumption of fuel oil is that of supplying heat in individual homes. Engineers who have had a great deal to do with perfecting oil burning apparatus for ships and large land furnaces are working on this end, and doubtless will succeed in developing a burner that will come into almost universal operation before a great many years.

ALL FORTUNES ARE NOT MADE IN NEW FIELDS

(Continued from Page 12)

Mid-Continent fields now financially hard up and dependent who would have been rich had they held on to their Bradford leases. Hundred-acre producing properties were sold for $20,000 in the 80's that sold in 1920 for $1,000 an acre after they had been producing over 30 years.

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HIGH PRICED OLD LEASE

BRADFORD, Pa., May 27.—A large oil lease at Gillmor owned by the Monroe Hall estate has been bought by the Kendall Refining Co. The lease includes 110 acres and 25 wells and also the residence of Mrs. Monroe Hall. The purchase price was $165,000. The heirs to the Hall estate are Mrs. Mornoe Hall, Dr. B. H. Hall and Merle Hall.

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Southern Oklahoma Wildcatters are Busy

DURANT, Okla., May 27.—Sowell and associates, of Dallas, Durant and Wichita Falls, believe that in drilling a rotary test on the Beal farm, 4 miles west of Durant, they mudded off a good oil and gas sand at about 1,700 feet. They have therefore abandoned the test at 2,000 feet and started another 100 feet away to test the 1,700-foot formation. Dr. J. B. Smith, of Durant, drilled a test a few days ago about 300 feet from the Sowell and found a rich oil and gas sand at between 1,300 and 1,400 feet. The hole was abandoned because the tools could not be recovered. The location was made upon recommendation of Geologist Larkin, of the Oklahoma Geological Survey and the Preston Anticline that was surveyed and mapped by the United States Geological Survey.

The Lucky One Hundred Oil Co., financed by eastern capital, is drilling at about 1,200 feet on the Ramsey farm, about 8 miles southwest of Durant. Cable tools are being used and a depth of 3,500 feet may be drilled if necessary.

Gas was found recently at about 700 feet in the test on the Love, 14 miles southwest of Durant. This is a rotary test, backed by Texas men, that is drilling at about 1,000 feet. Gas from several shallow wells, drilled with a spudding machine to about 250 feet, is produced in usuable quantities in a small area about 14 miles west of Durant.

The Lucky One Hundred Oil Co. is assembling a block of leases and has made a location on the Preston Anticline 8 to 10 miles south of Durant.

Wildcatters in the edge of Johnson County have found a gas sand at about 700 feet. It probably is the same as was found a few months ago in two wells 4 miles southeast of Caddo. It is reported that the latter wells may be deepened soon.

Denison men recently had a showing of oil and gas at 2,430 feet in a test north of Denison now drilling at about 2,700 feet on the Texas side.

W.F.K.

CONSOLIDATED PIPE LINE SHIPPING OIL FROM TWP. 11-11

The new Consolidated Pipe Line, recently organized by R. P. Kistler, R. W. Coleman, Matthew Nelson and E. L. Robinson, to lay a 69-mile 4-inch line from the Lyons Pool, in Township 11-11, Okfuskee County, to West Tulsa, on Friday morning made its first run.

The line was tested out Thursday with 1,011 pounds of water and a close inspection revealed every connection in proper place, and the leases to which the Consolidated Co. had made connections were then connected up with the line.

The Coleman-Nelson Refinery, at West Tulsa, received the first shipment of 5,000 bbls., and the Producers & Refiners Corporation's refinery was also supplied last week and early this week. Arrangements are being made also to supply other refineries here with Lyons Pool crude.

Mr. Kistler is president; Senator Coleman, vice president; Mr. Nelson, secretary, and Mr. Robinson, treasurer.

JAMES M. McDONALD DEAD

PITTSBURGH, Pa., May 27. — James Moreland McDonald, aged 49, died in his home, 332 Lehigh Avenue, East Liberty, last week. He was a lifelong resident of Pittsburgh. He was connected with the Hope Natural Gas Co. of Pittsburgh for several years. He leaves his widow, Mrs. Letitia Marshall McDonald; a son, James M. McDonald; two brothers, William M. McDonald, of Chicago, and Samuel McDonald, of Pittsburgh; and a sister, Mrs. Anna Sullivan, of Lisbon, Ohio.

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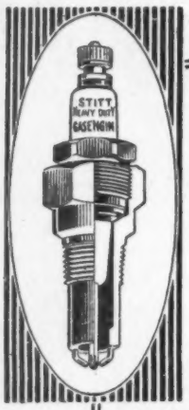

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Sincerity of Kickers Doubted by the Trade

The Weekly Trade Bulletin of the National Petroleum Marketers Association makes the following comment on the threat of a Department of Justice or a Congressional investigation of the advance in the filling station price of gasoline:

"According to reports from Washington, the motorists have been making complaint in thousands to the Bureau of Justice. This is a rather unusual condition and indicates organized effort coming from some source. It may be the automobile clubs, who threatened such determined resistance, if anything was done to increase the cost of motoring, and it may come from a desire by politicians to make a case against the national administration at the fall elections.

"In either event it is not an honest effort of the consumer against an increase in price that is affecting his living, for the advance in gasoline to date in the territory of the Standard Oil Co. (Ind.) would not make a difference to the motorist on the average gasoline consumption of over 25c for each hundred miles traveled. All know that no motor user would regard this as more than seasonable. A number of car owners outside of the oil industry, said that they did not care, as the cost of gasoline was the least expense in running a car.

"There seems to be a certain amount of what may be called the psychology in the situation. Every one expects to have a return to lower prices just because it costs more to live than it used to cost. The reports of the various agencies governmental and otherwise, regarding the cost of living assume that the prices for the year 1913 are normal and that a return to those prices is a return to normalcy.

"Do not different conditions assure different results? Just take the question of Federal taxation. The amount that it is proposed to save through the budget system of national financial expenditures is greater than the entire cost of running the government before the Civil War. When you go to a theatrical entertainment of any kind you pay the government's tax, whether it is added to the price or included in the cost of the seat. The management is not paying the tax from its own profits, but passing the tax on to the consumer, just as the oil jobber adds the State tax on gasoline to his selling price.

"The tariff bill that is proposed by the Ways and Means Committee has numerous important increases in the cost of importing foreign products into this country. Who pays the tax. The government collects from the importer, who collects from the jobber, who collects from the retailer, who collects from the consumer, and each, to be sure that he does not pay any of the tax, collects a little more than the amount that he is sure to pay.

"These are some of the ways in which prices are permanently increased and the assumption that the prices of 1913 should regulate costs today is wholly a mistake. We are living today under different conditions. The reports should not, for example, indicate an advance cost of living by comparison with past years when the costs are based on different and added elements of expenditure.

"A fair and free investigation has no threat for the independent refiner or oil jobber, but what the industry will not like to face is the investigation made for the purpose of making political capital to be used in securing a continuance of the 'ins' or the return of the 'outs' to power.

"There is little doubt that the petroleum situation will be made a national political issue owing to recent events in the industry. It is this feature that the trade may have cause to distrust, not a disclosure of real facts. The real facts are that the demand for gasoline, a de-

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mand with which the refiner has nothing to do, is growing so fast right now that the sources of supply really do not know if the stocks are sufficient to the demand and they are checking the demand a little by higher prices. This may not be the intention of the advance, but it is a result. If the actual consumption proves less than is at present anticipated, then prices will naturally reflect the condition. There is nothing in this that calls for governmental investigation. If they do investigate, get the facts, not biased opinions."

Petroleum Consumption of Guatemala is Announced

WASHINGTON, May 29.—The annual consumption of Guatemala of the principal petroleum products has been estimated at Guatemala City, as follows: Kerosene, 500,000 gallons; gasoline, 150,000 gallons; lubricating oil, 40,000 gallons; paraffin oil, grease and miscellaneous products, 125,000 gallons. To that portion of the oil industry that contributes directly to the foreign trade, figures of annual consumption compiled in the country of import are particularly valuable.

The monthly summary of foreign commerce often misleads the inexperienced, especially in consulting the figures for any one month because it often happens that a shipment in one month in the case of a small country carries much more than a month's supply, whereas in some months the figures indicate no exportation of oil at all. Even when the total of exports to a particular country are taken for a calendar or fiscal year they may be deceiving because they cannot take account of imports into the country from other countries than the United States. Bearing in mind the imports for a year by any country to which we export the exporter can get a clear view of our increase or falling off in trade.

As in many other smaller countries Guatemala has no trade papers or other sources of regularly published information, even the customs statistics not being published. It is only by obtaining these customs figures from the Government that our consuls learn what is the amount of imports into the country in which he is located. In the case of Guatemala Consul Arthur C. Frost obtained the figures quoted in the foregoing.

The Guatemalan Government gives these statistics in kilos which show that the year 1922 started off with small importations, the first three months giving but 5,497,000 kilos of petroleum of all classes imported, whereas for 1921 the quantity was 33,798,000 kilos, and 1920, 21,254,000 kilos.

The Pacific Coast region of Guatemala consumes most of the products of petroleum consumed in the country. Most of the gasoline is consumed in the city of Guatemala, the motor car and tractors not having come into common use with the rural population. When the agricultural labor of the Central American countries and other countries of that class is elevated to a higher standard of production the use of fuel oil and gasoline may be expected to advance rapidly.

C.E.K.

AMOY USING MORE GASOLINE

WASHINGTON, D. C., May 22. — The increasingly large number of automobiles and motor trucks in use on the new highways in the interior of Amoy, China, and the popularity of motor boats in Amoy harbor has caused a rapid increase in the consumption of gasoline in that section. During the last two years the construction of roads in Amoy has gone ahead rapidly. Kerosene imports have remained practically the same as in previous years. In 1921 gasoline remained practically the same as in previous years. In 1921 gasoline imports amounted to 65,681 gallons, whereas in 1920 the quantity was 6,456 gallons. C.E.K.

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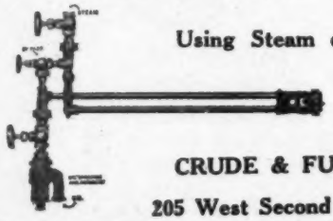

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Cedar Creek Anticline And Its Oil Prospects

The Cedar Creek or Glendive-Baker anticline is the outstanding structural feature of an area of about 4,000 square miles in Dawson, Prairie, Wibaux, Fallon, and Carter Counties, Montana; Slope and Bowman Counties, North Dakota, and Harding County, South Dakota. This anticline extends from Yellowstone River, near Glendive, Mont., across the southwest corner of North Dakota, and into northwestern South Dakota, for a distance of about 100 miles.

The geologic structure of this anticline was examined in the fall of 1921 by Gail F. Moulton and N. W. Bass, of the U. S. Geological Survey, Department of the Interior, who worked under the general direction of W. T. Thom, Jr. The mapping of the structural details of the southern half of this main anticline was greatly facilitated by the courtesy of the Absaroka Oil Development Co. in making available for reference their detailed structural map of that area. Previous work by Calvert, Winchester, Hares, Bauer, and other members of the U. S. Geological Survey also included maps that show the areal geology of the anticline and of the adjacent territory and afforded the information used in this report in regard to the principal structural features of areas near Ekalaka, Marmarth, and Camp Crook.

The Cedar Creek fold may be looked upon as an offset continuation of the northern end of the Black Hills uplift, whose direct extension fades out into a series of low flexures that parallel the Cedar Creek anticline in the area south and west of Baker. These flexures are commonly marked by relatively steep short westward slopes and by much longer and more gradual northeastward slopes. The east limb of the Cedar Creek anticline also shows some irregularities of dip 10 or 12 miles east of the anticlinal crest, and the small anticline shown by Stebinger, in U. S. Geological Survey Bulletin 471 (p. 286), probably extends southward from T. 17n, R. 58e, in a direction roughly parallel to the Cedar Creek fold. Domes that are probably due to minor cross folds have been imposed upon the axes of the large anticline and to a less degree upon the smaller anticlines.

Prospects of Obtaining Oil

The Cedar Creek, Plevna, Camp Crook, Westmore, and Medicine Rocks anticlines probably rank in the order named as possible sources of oil, the Geological Survey's experts say. The Cedar Creek anticline is ranked above the others as a possible producer of oil, both on account of its larger size, and because it is the most strongly folded of the several uplifts. The steeply tilted strata of its west limb show a greater inclination than that believed by some geologists to be the minimum necessary for the accumulation of commercial quantities of oil in the Cretaceous rocks of Montana, whereas the other folds show dips barely equal to or below this minimum. The Cedar Creek anticline not only has more favorable dips but is further favored by the relatively greater area from which oil might accumulate in it as compared with the smaller uplifts already named.

The thick marine shales of the Pierre, and more especially of the Colorado, contain organic material from which oil might be produced, and oil seeps from the basal beds of the Colorado on the southwest flank of the Black Hills. According to unconfirmed rumors there are also seepages on the north end of the Black Hills uplift.

Sands that represent the Judith River formation yield gas along the Cedar Creek anticline, but they probably will not yield oil, as the gas obtained is methane or "dry" gas. It seems barely possible that thin sands in the general position of the Eagle sandstone may be found just above the Colorado shale and may yield oil or gas at some places in

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the region south of Baker. More probably, however, if oil should be found at all, it will be derived from the Dakota (Cat Creek) zone of sands beneath the Colorado, or from the Mosby sand, slightly above the middle of the Colorado shale. The Lakota sand (approximately basal Cloverly), or lower sands of the Kootenai, although deeply buried, are also probably within reach of the drill on the higher uplifts and may be productive, and there is some chance that oil might be found in the upper part of the Sundance, from 100 to 250 feet below the Lakota.

Not all points along the axes of the several anticlines are equally favorable as locations for test wells. Domes are probably superposed upon the crests of all the more pronounced anticlines, and the higher of these minor uplifts are doubtless the more favorable places for oil or gas pools. Of the several domes, those on the Cedar Creek anticline south of and including the Ash Creek dome are believed to present the best chances for the discovery of oil. The Ash Creek dome is slightly lower than the domes to the south, but it is situated where the main anticline plunges toward the north, and partly on this account it is believed to have an unusually large tributary oil-drainage area. The only significant test of the possibility of obtaining oil in this whole region that has yet been made is that afforded by a well drilled by the Montana Yellowstone Oil Co. in Section 4, Township 14 N., Range 55 E. This well is reported to have found water in the Dakota sandstone at a depth of 3,900 feet, but as it was located northeast of and 200 feet structurally below the crest of the Gas City dome, which is itself well down on the plunging northern end of the Cedar Creek fold, its location was much less favorable than possible locations on the Ash Creek dome or on other domes on the Cedar Creek fold farther south.

Tests of the productivity of the domes on the Cedar Creek anticline should be made before development is attempted on the minor folds adjacent to it, and if these are prospected the Plevna, Camp Crook, Westmore, and Medicine Rocks anticlines should be tested in the order named. Projected test wells should probably be located near the axis of the anticline, as the evidence suggests that in many unsymmetrical folds, such as those discussed in this report, the subsurface crest of the fold will lie between the crest visible at the surface and the steeper limb of the fold.

In preparing for new tests, plans should also be made to drill to a depth of at least 4,300 feet along the crest of the Cedar Creek anticline, or to somewhat greater depths if the Plevna, Camp Crook, or other folds are to be tested. The combined thickness of the Pierre and Colorado shales amounts to about 4,000 feet near Glendive, and this thickness perhaps decreases slightly toward the south, because of a slight thinning of the shales above the Black Hills uplift. Drilling to depths so great involves very heavy costs, and it is by no means certain that commercial oil pools are present in any of the uplifts here considered, but the higher domes at least of the Cedar Creek fold merit a test for oil when higher prices again stimulate prospecting. Small volumes of natural gas may probably be obtained from the sands that represent the Judith River formation in all the pronounced structural domes, but they will be of little value except where a near-by town, such as Glendive or Baker, may afford a market for the gas.

Accessibility and Operating Conditions

Two railroad lines serve the territory adjacent to the Cedar Creek anticline. The Chicago, Milwaukee & St. Paul crosses the anticline from east to west near its central point, passing through the towns of Marmarth, Baker, Tonquin, Plevna, Westmore, Ismay, and Mildred, and the Northern Pacific skirts the northern end of the anticline, extending through the Wibaux and Glendive, and thence westward up the Yellowstone Valley. Graded roads radiate for considerable distances from the railroad towns, and most of the area is readily accessible by trucks or automobiles, except in continued wet weather, when the areas of Pierre shale become practically impassable. The most difficult territory to traverse borders the upper reaches of Cedar Creek. Here and in places along the Little Missouri Valley rapid erosion has produced extensive badland areas, where the local relief is several hundred feet. Elsewhere the relief is moderate and there are no great areas of very rough country except around the edges of the Long Pine Hills and other high buttes south of Ekalaka.

The Yellowstone and Little Missouri are the major streams of the area, and O'Fallon, Cabin, Pennel, Sandstone, Cedar, Beaver, Little Beaver, and Box-elder creeks either flow or contain pools of water throughout the year. To insure a supply of water for drilling from one of these creeks, however, it might be a wise precaution to build a temporary dam and reservoir. Near the head of O'Fallon Creek and around the high buttes in the southwestern part of the area springs are numerous, and in the valley bottoms artesian water may possibly be obtained from the Fox Hills or the Colgate sandstone.

Lignite for fuel is obtainable from the many local mines of the region, and cedar wood is abundant near the head of Cedar Creek. Favorably located wells, like the Cabin Creek well, might also obtain enough gas from the sands that represent the Judith River to serve as fuel for further drilling.

FOCO OIL CO. WILL REOPEN AFTER LONG CLOSED PERIOD

OIL CITY, Pa., May 25.—The plant of the Foco Oil Co. in Franklin will probably be in operation early next month after having been closed for a period of nearly half a year. It will be purchased by the newly organized Lakeside Oil Refining Co.

The officers of this company will be: George L. Southard, of Franklin, president; Guy S. Forcier, St. Louis, vice president; R. R. Bleakley, treasurer, and Paul C. Moore, secretary. The board of directors will include: R. R. Bleakley, Guy S. Forcier, D. W. Grant, C. L. Maguire, of Chicago; Harry A. McClimans, George L. Southard and Roger B. Williams, of New York. Mr. Maguire will be chairman.

When the question of financing the plant came up, a syndicate along modern banking lines was formed through which $60,000 was provided. This syndicate has acquired all the securities of the company not used to buy the Foco stock and will hold them until the company has a record of earnings before they are offered for sale.

In addition to the refinery, tank cars and service station acquired from the Foco Co., the new Lakeside Oil Refining Co. intends to install a Jenkins cracking still and make other improvements.

TRIBAL OSAGE OIL LEASES AT PUBLIC AUCTION JUNE 28, 1922 BY U. S. GOVERNMENT

June 28, 1922, at Pawhuska, Oklahoma, about 35,000 acres will be offered for oil leases in quarter section tracts. Bids will be for bonus in addition to royalties, 25 per cent payable on day of sale, balance in three annual installments, with acceptable security. Within advertised area there are about 7,500 oil wells producing from 1 bbl. to 1,500 bbls. each, the total daily production for April, 1922, being about 95,000 bbls.; also there are about 308 wells drilling. All lands are now leased separately for gas. Blue print maps of area advertised showing tracts offered together with tracts leased, also showing tracts producing oil or gas can be had for 50 cents each, also logs of producing wells for 25 cents each well. Write U. S. Superintendent, Osage Agency, Pawhuska, Oklahoma, for maps, logs or further information.

BERNARD COOPER
OIL AND GAS
Bonafide producing and undeveloped properties in the Mid-Continent.
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TULSA, OKLA.

William H. Foster W. A. Reiter
FOSTER & REITER
CONSULTING GEOLOGISTS
19th Floor, Magnolia Bldg., DALLAS
7th Fl., 1st Nat. Bank Bldg., TULSA
MEXIA, TEXAS

J. E. HUFF
Oil and Gas Producing Properties in Kansas, Oklahoma and Texas. Also can furnish good looking acreage for development. Appraisals, valuations and reports made.
611 Petroleum Bldg.
TULSA, OKLA.

WESTERN BANK SUPPLY CO.
Manufacturing Stationers
High-Grade Office Furniture
Filing Cabinets—Safes
LOG BOOKS TOWNSHIP PLATS—ALL STANDARD FORMS
Lithographing Embossing
Engraving Printing
THE HOUSE OF QUALITY
317 West Main St. 4th and Boston
OKLAHOMA CITY TULSA, OKLA.

Capital Abstract & Realty Company
W. S. Bell, L. B. Norton
J. F. Patterson
OKMULGEE, OKLA.

DAWSON TOWEL SUPPLY
Aprons, Towels and Jackets for Rent
Towel Service for Office, $1 per Mo.
Phone 2185 TULSA, OKLA.

DICKEY-ASHBY-FOUNTAIN CO.
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212 S. Boston Ave., TULSA, OKLA.

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"BETTER PRINTING"
112 W. Second St
Phone O-238 TULSA, OKLA.

LAFE SPEER ABSTRACT CO.
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THE JOE N. LYON COMPANY
Advertising Campaigns
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BOSSER-CASEBEER FURNITURE CO.
Furniture for Office and Home
Shaw-Walker Filing Devices
Phone 3034 TULSA, OKLA.

SAND SPRINGS WATER CO.
Pure Spring Water
Distilled
TULSA, OKLA. Phone Osage 700

Place your orders for Ice with the
TULSA ICE COMPANY
Phone 12. 4 N. Detroit, TULSA, OKLA.

Classified Advertisements

CLASSIFIED RATES

Advertisements under this heading are 25 cents per line for each insertion. Estimate cost on the basis of six words to the line. Replies forwarded free. Payment in advance.

FOR SALE

GAS ENGINE FOR SALE—100 h.p. 3-cylinder Foos Suction Producer Gas Engine and Smith Gas Producer, both in first-class condition and as good as new. For further particulars address United Cigarette Machine Co., Drawer 748, Lynchburg, Va.

FOR SALE—All or any part of 640 acres in the Gridley (Kans.) Field; nine producing wells; one rig drilling; two power plants. Address C. O. Coghill, President, Iola, Kans.

FOR SALE—A tract of acreage in famous Bristow Field. Box 158, Depew, Okla.

NEW MEXICO RANCH

$60,000, no trade terms; $20,000 cash, balance 10 years; 5,000 acres tractor land, 4,500 acres rough grass land, 1,500 acres plains wheat land, 4,000 acres valley bean land, 9,000 acres leased grazing land; all farming implements, 5-room stone dwelling, 3 wells and windmills, 4 springs, tanks; all for $60,000. No trade. Also 640 acres improved section fine farm. O. Dykes, Tucumcari, N. M.

PRODUCTION FOR SALE

You small oil men who want to get into the game! I have a fine 160-acre lease, with one producing well on it, first drilled, no dry holes. Production adjoining. Fine opportunity to go ahead. Derrick, oil tank, power pump and engine. Obliged to sell and will sell at a bargain. Owner, I. G. Lee, Independence, Kansas, at Carl-Leon Hotel.

PRODUCTION FOR SALE

Moving from State, will sell lease in heart of fine shallow field, 60 acres and 6 wells settled pumping 600 bbls. per month; room to drill; 6-room pumper's house and garage; cistern and well; plenty of gas, metal power house, concrete floor; 20 h.p. Superior engins, 100-bbl. circulating tank, band wheel power, one 1,600-bbl. oil tank, one 250-bbl. and three 100-bbl. tanks. This is high-grade. Will sell reasonably. Address Owner, care P. O. Box 367, Independence, Kans.

FOR SALE

A number of country homes on Lake Minnetonka and about Minneapolis.

A beautiful summer climate with fishing, golfing and other sports and city life within 15 miles with good auto roads.

WM. Y. CHUTE
738 McKnight Bldg., Minneapolis, Minn.

50-ACRE LEASE
Allen County, Kentucky

Will sell 50-acre lease in the Halfway Pool, Allen County, Kentucky, offsetting well now drilling on the same farm. This is dandy looking property and wells come in in this vicinity as high as 100 bbls. and at shallow depths. Will sell reasonably or will sub-divide into two 25-acre tracts. This is dandy property for syndicate or investment buyer. You will make big profits with the coming in of well now drilling. Quick action necessary as well now drilling will be completed in 10 days. Wire for price.

J. P. FRIEL
438½ Main Street, Bowling Green, Ky.

If you are in need of drilling equipment of any kind, turn to the Want Ad section of this issue of The Journal. You will find listed there materials that are available for immediate delivery.

FOR SALE—We have on hand a few back numbers of The Oil and Gas Journal, which we shall be glad to furnish at 20c each. No issues previous to January, 1913.

THE PETROLEUM PUBLISHING CO. 114-116 West Second, Tulsa, Okla.

Classified Advertisements

FOR SALE

160 ACRES southwest Section 5-26-11, Osage County, Oklahoma, on structure adjoining production; three sands; to let 75 per cent drilling contract. Jas. Haynes, Grantville, Kans.

3,000-ACRE drilling contract to let on royalty basis in Baldwin County, Ala. An Indiana company is now drilling. U. S. Steel has leased large acreage in same county. J. W. Newman, 74 West Washington St., Chicago.

FOR SALE

Must give disposition on fifty 8,000-gallon clean Allegheny tank cars now located at Tulsa; price right. Address M. R. Travis, owner, Tulsa, Okla.

SELECTED Arkansas and Louisiana oil leases, including Bossier, the world's shallowest wonder field. W. N. Collins, Shreveport, La.

FOR SALE—Oil and gas accounting forms meeting every requirement in the well-equipped office to property conduct your business. Write the Derrick Publishing Co., Oil City, Pa., for detailed information.

FOR SALE—2-ton Denby truck complete with cab and stake body; driven only 500 miles; price $2,200 f.o.b. Muskogee. Empire Electric Supply Co., Muskogee, Okla.

SHALLOW PRODUCTION

FOR SALE—Five producing wells, star drilling machine, extra material, and interest in 980 acres, shallow field, Kansas. Price attractive. Address Box 844, care The Oil and Gas Journal.

INVESTORS

For Sale—Producing royalties Mexia Field at a price that will net you 10 to 15 per cent monthly on your investment. Settled production.

J. F. Marion Company
211-12 Slaughter Building
Dallas, Texas

KENTUCKY OIL PRODUCERS, ATTENTION—If you have producing property shut down or not making you money for various reasons, would consider handling same on production basis and put in condition to sell or make you money by properly operating; 20 years' experience as producer. Address "Producer," Lock Box 2, Bowling Green, Ky.

OIL FIELD LEGAL BLANKS—Leases, assignments, releases, township plats, gauge books, run tickets, time books, well records, etc. Request on your letter heads gets free catalogue. Olds Press, 215 East Third St., Tulsa, Okla.

FREE ON REQUEST—Map of Allen County, Kentucky, showing pools. Greatest shallow oil field in the world. Production on pipe line and leases with wells equipped and unequipped, near pipe line. Splendid opportunity for oil companies or syndicating. Brokers and promoters protected. Lock Box 4, Scottsville, Ky.

A NEW SHALLOW OIL FIELD

390 feet deep, 24 feet of true sand. Costs $1,200 to drill and case a well; 55 miles southwest of Pioneer, on the Zella ranch. Sure of deeper production in a sand in the bend at 1,750 feet. Have large acreage and one well drilled to the shallow pay. Want parties with money to join me in developing the field. Address Jeff Meers, San Angelo, Texas.

FOR LEASE

KAY COUNTY, Oklahoma, 160 to 480 acres southwest of Tonkawa; want a well started soon. Address Box 881, care The Oil & Gas Journal.

WANTED

WANTED—To correspond with parties owning Standard Tools, heavy make; Rotary outfit and good portable machine of heavy size, with reference to drilling near Wanette, Pottawatomie County, Oklahoma. J. A. Davy, Muskogee, Okla.

DRILLER WANTED—Will give large block of leases where oil is in sight for drilling well. P. B. Miller, Salem, Mo.

Classified Advertisements

WANTED

WANTED—TEST WELL

Own 2,000 acres leases on well seelcted structure, southern LeFlore and northern McCurtain Counties, Oklahoma's coming new field; big interests control large blocks of acreage adjoining; to reasonable party will give a liberal contract for a test well; large production at shallow depth assurred. Abundance fuel and water at hand. Address Owner, P. O. Box 412, Erie, Pa.

HELP WANTED

WANTED—SUPERINTENDENT for compression gas plant, located in the East. Gas supply controlled, assuring a stable operation; now handling 300,000 cubic feet daily. Agreeable living conditions within the town limits. A college graduate or technically trained, experienced man only. Address Box 356, Bradford, Pa.

WANTED — CASINGHEAD GASOLINE PLANT SUPERINTENDENT for Bessemer equipment of 250 h.p.; gasoline storage 100,000 gallons; 15 miles of gathering lines. The man we want is above the average. He must be thoroughly experienced in all details from the casinghead to the loading rack. Show results in economy of operation and production of gasoline and when given an idea can carry it through to completion. Location, Northwestern Pennsylvania. Address, Box 356, Bradford, Pa.

WANTED—OFFICE ASSISTANT—Company owning oil and gas leases, two casinghead gasoline plants connected by 50 miles pipe lines to leases, desires experienced young man for general work. Must be able to handle correspondence, certain amount of purchasing, cost finding and general work connected with such operation. Location, Northwestern Pennsylvania. Address Box 356, Bradford, Pa.

BUSINESS OPPORTUNITY

PRODUCTION WANTED—If you have leases with good production for sale, or if you have a lease with production and need cash to fully develop it, write me giving full details. Jas. V. Polk, Beaumont, Tex.

OIL MEN READ—If you are looking for oil leases with the intention of drilling for oil or organizing a company, I can contract to furnish you leases with reports by the most successful of all oil men or geologists in locating big gusher fields. The following are the fields he located and production in barrels up to January 1: Spindletop, 47,384,644; Humble, 87,723,462; Goose Creek, 36,266,261; Damon Mound, 3,534,675; Thrall, 2,324,244; Barber Hill (new), 375,675; Orange (new), 824,087. Send for my little book giving the history of the oil business—no charges. Jas. V. Polk, Beaumont, Tex.

DRILLING CONTRACT—Give free 5,000 acres for test well. Northeast Texas; well located; liberal contract; well blocked. Write for full details. Deal direct with owner. J. H. Montgomery, 1501 East 10th St., Oklahoma City, Oklahoma.

COMPANY CAPITALIZED at TEN Million Dollars, owning one-half million acres of excellent oil leases with perfect title, in Old Mexico, wants connections to market securities for development purposes only, or would consider sale of leases. Is a very unusual proposition. Investigate! P. O. Box 957, Kansas City, Mo.

A CHANCE TO WIN—80 against production. Box 175, Wellsville, Kans.

I HAVE LEASE on five acres of oil land within three city blocks of production at Signal Hill Oil Pool, Long Beach, Calif. I want to interest company which will drill on this property on a percentage basis. Fine proposition which will interest company with capital and drilling rig to develop this proposition. One well came in last week within four city blocks of my lease producing 3,000 bbls. per day. Wells now drilling within 600 feet have good showing of oil. Address H. B. Arnett, 305 West Main St., Alhambra, California.

Classified Advertisements

BUSINESS OPPORTUNITY

TO LET—A DRILLING CONTRACT FOR ACREAGE on STRUCTURE, 60 miles from Tulsa, Oklahoma. Have 1,000 acres on structure, surveyed and mapped by well known geologist. There should be encountered three good pay sands around 1,400, 2,100, and gusher type at 2,600 to 2,700 feet. Fuel and water convenient. Address Box 250, Iola, Kan.

COMPLETE scientific systems for every branch of the oil and gas business that will simplify and facilitate the handling of accounts and business records. Estimates furnished on loose-leaf and bound books, ruled and printed forms for keeping records of all sorts for every kind of business. Mail orders solicited. The Derrick Publishing Co., Oil City, Pa.

WE WILL BUY Thread protectors, carload lots, all sizes. Wire or write M. R. Regan, Rochester, Pa.

PRODUCING PROPERTIES WANTED

In independent, going oil company, owning and operating oil wells with substantial production in Texas, Oklahoma and Mexico, and provided with tank farms, transportation and organization, desires to secure additional well-located producing properties for the purpose of enlarging its operations. Possessing ample capital, the company is in a position to purchase, finance or combine with meritorious independent oil interests owning properties that can bear thorough investigation. Prefer properties located in Texas, Oklahoma, Louisiana and Arkansas. Full details in submitting propositions will be appreciated. Information will be treated as confidential. Address Box 863, care The Oil and Gas Journal.

CLASSIFIED RATES

Under this heading, advertisements will be carried at the rate of 25c per line each insertion. Estimate cost on the basis of six words to the line. Replies forwarded free. Payment in advance.

POSITION WANTED

DESIRE CONNECTION with good company as lease man or scout; prefer wildcat work. Experienced in leasing and had special short course in geology. References on request. Address Box 894 care The Oil and Gas Journal.

EXECUTIVE and sales manager, with considerable experience, wants position with responsible company. Age 38. Competent to assume large responsibilities. Located in Tulsa, but will move North or East if desired. Have sold materials used in oil industry. References and details of experience furnished. Address Box 893 care The Oil and Gas Journal.

REFINERY ENGINEER; maintenance; construction; mechanical; 8 years' experience; college graduate; excellent record. Address Box 892 care The Oil and Gas Journal.

ATTORNEY for large American and Mexican oil corporation seeks business opening for law; trained executive with responsible oil company; broad knowledge of all branches of oil industry; extensive commercial experience, especially selling; won four national first prizes in sales contests; knowledge of Spanish, German and French. Now at New York office. Address Box 891, care The Oil and Gas Journal.

POSITION wanted by eastern oil man; have had 14 years of experience from the ground floor up; willing to go any place to superintend drilling or production; married; have excellent health and habits; best of references. Address Field Man, care The Oil and Gas Journal.

GRADUATE GEOLOGIST OR ASSISTANT desires position as geologist or assistant with reliable company; one year's experience; age 25; single and will go anywhere. Address Box 885 care The Oil and Gas Journal.

PETROLEUM engineer, 38; fifteen years' experience in oil and gas business; can do any or all work necessary in an engineering, land or meter department; fair geologist; expert on tax problems and valuations; now chief engineer of a gas company; prefer small gas company where an all-around knowledge would be particularly useful; references; Pittsburgh interview. Address Box 865, care The Oil and Gas Journal.

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LUPTON THINKS WELL OF THIS DAKOTA STRUCTURE

LEMON, S. D., May 27.—Charles T. Lupton, of Denver, a reputable geologist, has passed on the Weedman structure and has recommended drilling. The Weedman structure is in the southern part of Perkins County and was one of the first oil structures to be discovered in this section. Several years ago the structure was leased by I. N. Walker, representing Montana and Wyoming oil men, but no development has been started.

The structure is located about 15 miles from Faith, S. D., and 50 miles from Lemmon. It is a well closed anticline with possible oil and gas horizons in the Greenhorn, Muddy and Dakota sands at 2,150, 3,150 and 3,350 feet respectively.

A test of the structure has recently been contracted with J. M. Curtis, representing the Union Holding Co., of Denver, Col., and lumber for the derrick has already been hauled to the structure. Curtis is the same man who has contracted the test of the Lemmon Basin and who has already drilled a test to a depth of 1,765 feet 6 miles southwest of Lemmon. The leases on the structure have been assigned to the Union Holding Co.

PIPE LINE STATEMENT FOR APRIL

OKLAHOMA AND KANSAS

Runs

	Month	Dy.Av.
Prairie Pipe Line Co. (est.)	3,750,000	125,000
Gulf Pipe Line Co.	959,727	31,991
Texas Pipe Line Co.	780,421	26,014
Magnolia Petroleum Co.	833,404	27,780
Empire Pipe Line Co.	977,824	32,594
Cosden Pipe Line Co.	1,194,835	39,828
Sinclair Pipe Line Co. (est.)	1,916,500	63,883
Other Lines. (est.)	4,224,000	140,800
Total, April	14,636,684	487,490
Total, March	14,686,364	472,841
Difference	49,680	15,046

Shipments

	Month	Dy.Av.
Prairie Pipe Line Co.	*3,945,902	131,530
Gulf Pipe Line Co.	799,609	26,653
Texas Pipe Line Co.	814,134	27,138
Magnolia Petroleum Co.	527,153	17,571
Empire Pipe Line Co.	888,382	29,613
Cosden Pipe Line Co.	1,016,428	33,881
Sinclair Pipe Line	*858,304	28,610
Other Lines (est.)	3,684,000	122,800
Total, April	12,533,912	417,895
Total, March	12,224,215	394,328
Difference	308,697	23,467

*includes shipments of Texas oil.

Stocks

Prairie Oil & Gas Co (est.)	21,000,000
Prairie Pipe Line Co.	2,000,000
Gypsy Oil Co.	5,296,006
The Texas Co.	6,828,445
Carter Oil Co.	15,000,000
Magnolia Petroleum Co.	4,316,463
Empire Pipe Line Co.	1,578,062
Cosden Pipe Line Co.	1,069,234
Sinclair Crude Oil Purchasing Co.	16,460,292
Other Lines (est.)	3,540,000
Total, April	76,674,502
Total, March	72,891,115
Difference	3,783,397

NORTH CENTRAL TEXAS

Wichita and Wilbarger Counties

Runs

Company—	Month	Dy.Av.
Magnolia Petroleum Co.	183,088	6,717
Panhandle Refining Co.	203,760	7,277
The Texas Co.	431,204	15,400
Outside	104,571	3,733
Total, February	927,562	33,127
Total, January	1,008,352	32,528
Difference	80,790	499

Shipments

Magnolia Petroleum Co.	176,847	6,208
The Texas Co.	262,503	10,039
Panhandle Refining Co.	41,320	1,476
Outside	522,670	18,650
Total, February	1,022,839	36,513
Total, January	1,081,099	34,913
Difference	58,260	1,600

Petrolia—Runs

Magnolia Petroleum Co.	3,635	130
The Texas Co.	4,717	168
Total, February	8,352	298
Total, January	9,781	316
Difference	1,429	18

Shipments

Magnolia Petroleum Co.	3,464	124
The Texas Co.	243	9
Total, February	3,707	133
Total, January	2,528	81
Difference	1,179	52

Strawn and Moran—Runs

The Texas Co. (February)	9,620	344
The Texas Co. (January)	7,502	228
Difference	2,118	116

Shipments

The Texas Co. (February)	4,977	179
The Texas Co. (January)	2,283	74
Difference	2,694	205

Eastland and Stephens Counties—Runs

Magnolia Petroleum Co.	63,467	2,267
The Texas Co.	288,278	10,296
Prairie Oil & Gas Co.	588,000	21,000
Total, February	939,745	33,563
Total, January	1,083,545	34,453
Difference	43,800	889

Shipments

Magnolia Petroleum Co.	116,032	4,144
The Texas Co.	228,509	8,161
Prairie Oil & Gas Co.	585,300	20,900
Total, February	929,741	33,205
Total, January	1,093,105	35,584
Difference	63,364	2,371

Caddo and Vicinity

T. P. Coal & Gas Co.	6,440	230

Corsicana

Heavy	9,924	357
Light	6,586	235
Total	16,570	592

Stocks

	Bbls.
Magnolia Petroleum Co.	7,347,502
The Texas Co.	790,229
Panhandle Refining Co.	205,540
T. P. Coal & Gas Co.	673,520
Outside	401,640
Prairie Oil & Gas Co.	8,370,000
Total, February	17,688,431
Total, January	17,160,050
Difference	528,381

CALIFORNIA

Shipments and Stocks

	Bbls.
Stocks on hand February 28, 1922	36,701,510
Production for March	10,345,860
Total	47,047,670
Shipments for March	9,055,978
Stocks on hand March 31	37,991,694
Surplus for 13 months	16,412,056
Daily average, gain	44,948

EASTERN FIELDS

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for March and April:

	Mar.,'22	Apr.,'22
Nat. Transit	208,555.05	199,002.29
S. W. Pa. P. L.	92,954.02	92,544.81
Eureka P. L.	488,604.86	451,098.72
Buckeye P. L. (Macksburg)	273,616.25	243,671.83
Buckeye P. L. (Cleveland)	31,315.04	28,847.21
Buckeye P. L. (Lima, etc.)	116,909.43	108,496.82
Indiana P. L.	20,073.84	17,538.43
Cumberland P. L.	353,497.84	329,719.90
N. Y. Transit	15,025.00	13,602.50
Tidewater P. L.	107,327.94	133,977.02
Pure Oil P. L.	212,097.60	190,539.65
Emery P. L.	36,455.81	32,671.90
Paragon Refining	36,200.29	28,807.99
Indian Refining	426,320.58	382,779.55
Pittsburgh P. L.	13,483.70	10,554.43
Total	2,434,447.25	2,263,853.07
Daily average	78,530.55	75,461.77

Note.—Indian Refining Co. also reported other recipts of 74,263.72 bbls. and other deliveries of 26,732.85. Paragon Refining Co. had other receipts of 12,199.99.

Petroleum Deliveries

The following table exhibits the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for March and April:

	Mar.,'22	Apr.,'22
Nat. Transit	294,759.03	380,228.98
S. W. Pa. P. L.	206,946.60	189,893.11
Eureka P.L.	105,475.41	91,474.18
Buckeye P. L. (Macksburg)	80,075.10	79,635.61
Buckeye P. L. (Cleveland)	1,173.56	2,453.12
Buckeye P. L. (Lima, etc.)	674,782.24	793,342.90
Indiana P. L.	20,073.84	17,538.43
Cumberland P. L.	16,372.75	55,812.36
Southern P. L.	194,951.66	145,184.43
Crescent P. L.	111,673.06	50,622.54
N. Y. Transit	319,617.27	167,477.79
Northern P. L.	99,308.57	75,261.86
Tidewater P. L.	164,413.40	147,494.43
Pure Oil P. L.	211,008.64	216,310.44
Emery P. L.	35,304.34	33,353.28
Paragon Ref.	86,046.63	85,759.58
Indian Refining	568,746.67	535,026.89
Pittsburgh P. L.	13,747.24	12,130.32
Total	3,960,328.06	3,812,037.54
Daily average	127,752.52	127,067.68

Gross Stocks

The gross stocks held by various pipe lines in the oil producing section of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky at the close of March and April are as follows:

	Mar.,'22	Apr.,'22
Nat. Transit	1,034,596.67	1,117,887.72
S. W. Pa. P. L.		
Eureka P. L.	626,714.79	623,016.31
Buckeye P. L. (Macksburg)	2,062,527.14	2,066,525.41
Buckeye P. L. (Cleveland)	565,395.21	524,810.50
Buckeye P. L. (Lima, etc.)	31,699.73	25,730.20
Indiana P. L.	5,702,508.10	5,595,461.95
Cumberland P. L.	859,435.33	872,443.83
Southern P. L.	541,848.39	558,742.35
Crescent P. L.	960,411.61	949,229.50
N. Y. Transit	2,400,897.67	2,418,075.08
Northern P. L.	1,058,245.99	1,155,279.20
Pure Oil P. L.	356,665.59	331,766.33
Emery P. L.	7,705.78	5,533.43
Paragon Ref.	243,042.18	201,999.08
Indian Ref.	317,113.90	308,149.75
Pittsburgh P. L.	9,785.04	3,492.52
Swiss P. L. Co.	2,411.56	2,279.91
Total	16,877,936.58	16,777,841.53
Decrease	131,356.12	100,095.05

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

Month—	1919	1920	1921	1922
January	66,775	56,004	64,460	67,702
February	60,531	68,699	70,054	75,096
March	67,473	67,745	63,555	78,531
April	72,551	64,539	65,036	76,462
May	70,947	63,937	65,466	.....
June	74,823	68,750	62,438	.....
July	71,711	66,479	59,486	.....
August	65,270	63,861	64,858	.....
September	68,649	65,162	60,110	.....
October	67,625	65,066	57,688	.....
November	60,121	62,758	58,470	.....
December	64,128	60,975	61,000	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

Month—	1919	1920	1921	1922
January	100,241	98,835	115,650	119,792
February	108,432	107,146	96,736	111,362
March	114,748	110,777	84,168	127,753
April	112,337	114,090	101,015	127,068
May	117,503	110,219	100,252	.....
June	104,185	102,598	105,037	.....
July	125,074	112,340	97,096	.....
August	124,352	122,296	131,652	.....
September	118,772	127,131	117,440	.....
October	134,829	122,891	105,728	.....
November	133,676	117,730	121,802	.....
December	124,133	117,294	104,023	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines, at the close of each month for the past three years:

Month—	1920	1921	1922
January	8,172,639	7,916,353	16,297,858
February	8,186,983	8,721,878	17,009,293
March	8,678,899	9,818,766	16,877,937
April	8,032,578	10,369,941	16,777,842
May	8,391,646	11,224,694	.....
June	8,013,874	12,328,126	.....
July	8,138,687	13,795,698	.....
August	8,349,230	15,155,623	.....
September	8,180,977	15,525,750	.....
October	7,925,059	15,761,079	.....
November	7,760,060	14,971,071	.....
December	7,864,207	15,854,741	.....

Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of March and April, showing the gross stocks of the above fields:

	Mar.,'22	Apr.,'22
Pennsylvania	3,642,900.11	3,638,220.16
Lima	1,240,324.85	1,094,892.02
Kentucky	1,705,641.78	1,169,801.39
Mid-Continent	10,108,049.93	10,101,344.57
Illinois	271,019.91	173,583.39
Total	16,877,936.58	16,777,841.53

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, May 1	2,545,756.23
Runs from wells	489,035.49
Other receipts	99,493.15
Regular deliveries	196,852.92
Other deliveries	478,649.49

The amount of Illinois oil run by the Tidewater Pipe Line Co. in April was 30,758.40 bbls., and deliveries were 28,886.22 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries from the Illinois field as follows:

1921—	Runs	Deliveries
April	519,793.89	195,789.14
May	683,467.96	156,058.81
June	657,161.17	109,351.61
July	638,519.42	149,230.73
August	677,854.99	217,268.91
September	627,274.26	129,196.53
October	669,482.01	209,750.68
November	598,449.53	229,992.87
December	599,776.54	199,767.01
1922—		
January	574,553.30	254,255.46
February	534,351.42	204,800.70
March	656,056.92	263,163.01

The Tidewater Pipe Co., Ltd., also delivered in April 95,313.44 bbls. of Oklahoma oil. The total deliveries of all grades by the Tidewater were 231,694.09 bbls.

Franklin Pipe Line Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and not counted in the stocks and averages reported above:

1921—	Receipts	Shipments	Stocks
May	3,337.15	3,821.56	15,519.47
June	3,387.95	3,093.21	16,814.21
July	3,996.26	.....	19,813.47
August	3,336.64	1,942.08	21,168.03
September	3,106.94	4,906.82	19,369.15
October	3,126.90	7,316.30	15,179.75
November	2,987.00	5,091.15	13,075.49
December	2,066.89	501.43	16,641.16
1922—			
January	2,389.83	33.62	17,997.36
February	2,872.48	700.17	20,170.67
March	3,101.87	2,262.24	21,010.30
April	3,494.48	3,037.62	21,467.16

EASTERN PIPE LINES

The following table shows the runs and shipments by the various pipe lines in the oil fields of New York, Pennsylvania, West Virginia, Kentucky, Tennessee, Ohio and Indiana:

Runs, May 1 to 21, inclusive

National Transit Co.	150,628
South West Pa. Lines	66,417
Eureka P. L. Co.	259,194
Buckeye P. L. Co. (Lima)	99,781
Buckeye P. L. Co. (Macksburg)	175,108
Cumberland P. L. Co.	240,101
Indiana P. L. Co.	12,494
New York Transit Co.	11,434
Tidewater Pipe Line (Pa. Oil)	107,798
Tidewater Pipe Line (Ill. Oil)	23,776
Total	1,146,731
Average runs	54,750

Shipments, May 1 to 22, inclusive

National Transit Co.	277,936
South West Pa. Lines	163,920
Eureka P. L. Co.	72,502
Buckeye P. L. Co. (Lima)	83,620
Buckeye P. L. Co. (Macksburg)	162,177
Cumberland P. L. Co.	84,717
Indian P. L. Co.	31,598
New York Transit Co.	4,634
Tidewater Pipe Line (Pa. Oil)	246,636
Total	1,127,738
Average shipments	51,261

IMPORTS OF PETROLEUM AT PRINCIPAL U. S. PORTS

According to figures collected by the American Petroleum Institute, the imports of petroleum (crude and refined oils) at the principal United States ports for the week ended May 20 totaled 3,075,057 bbls., a daily average of 439,294 bbls., compared with 2,888,200 bbls., a daily average of 412,600 bbls. for the week ended May 13.

Receipts at Atlantic coast ports for the week ended May 20 were 1,690,057 bbls., a daily average of 241,437 bbls., against 1,292,000 bbls., a daily average of 184,571 bbls. for the week ended May 13.

Receipts at Gulf Coast ports were 1,385,000 bbls., a daily average of 197,857 bbls., against 1,596,200 bbls., a daily average of 228,029 bbls. for the week ended May 13.

IMPORTS OF PETROLEUM AT U. S. PORTS

(Barrels of 42 gallons)

	Week Ended May 20	Week Ended May 13
At Atlantic Coast Ports—		
Baltimore	481,867	201,000
Boston	156,000	156,000
New York	580,000	595,500
Philadelphia	214,000	273,500
Others	258,190	66,000
Total	1,690,057	1,292,000
Daily average	241,437	184,571
At Gulf Coast Ports—		
Galveston district	218,000	317,000
New Orleans and Baton Rouge	460,000	534,300
Port Arthur and Sabine district	692,000	730,000
Tampa	15,000	15,000
Total	1,385,000	1,596,200
Daily average	197,857	228,029
At All U. S. Ports—		
Total	3,075,057	2,888,200
Daily average	439,294	412,600

Note.—Figures are presented for the week ended Saturday morning so as to conform with period covered by the Institute report of estimates of daily average gross production. Figures are subject to revision each week. They are complete for all the principal ports where foreign mineral oil is imported.

MEXICAN GOVERNMENT PETROLEUM STATISTICS

The financial agency of the Mexican government, located at No. 120 Broadway, New York, sends out the following summary of statistics of Mexican petroleum for January of the current year (in barrels of 42 gallons):

	Production	Export
Heavy	3,980,777	3,578,525
Light	16,656,819	8,357,963
Fuel oil		4,866,359
Gas oil		32,426
Crude gasoline		580,907
Refined gasoline		92,268
Refined Kerosene		61,846
Lubricants		19
Asphalt		18,883
Totals	20,637,596	17,589,196

The oil exported from Mexico during January was divided among the countries named and in the following percentages: United States, 86.7 per cent; Central and South America, 5.9 per cent; Europe, 6.4 per cent; Asia and Africa, 1 per cent.

Summary of Statements Made May 10, 1922, Relating to Business of Various Pipe Lines for Month Ending April 30, 1922

	Gross Stocks	Runs from Wells	Other Receipts	Regular Deliveries	Other Deliveries
Nat. Transit	1,117,887.72	199,002.29	959,619.42	380,228.98	700,633.43
S. W. Pa. P. L.	623,016.31	92,544.81	729,819.56	189,893.11	637,037.15
Eureka P. L.	2,066,525.41	451,098.72	642,632.67	91,474.18	999,436.38
Buckeye P. L. (Macksburg)	524,810.50	243,671.83	3,637.02	79,635.61	312,789.92
Buckeye P. L. (Lima, etc.)	5,595,461.95	108,496.82	1,596,896.32	793,342.90	1,044,424.33
Buckeye P. L. (Cleveland)	25,730.20	28,847.21	.....	2,453.12	33,025.34
Indiana P. L.	872,443.83	17,538.43	2,137,974.42	730,575.72	1,392,689.82
Cumberland P. L.	558,742.35	329,719.90	74.57	55,812.36	264,677.33
Southern P. L.	949,229.50	.....	649,653.98	145,184.43	515,322.40
Crescent P. L.	111,418.46	.....	76,398.75	50,622.54	.....
N. Y. Transit	2,418,075.08	13,602.50	314,338.44	167,477.79	152,422.89
Northern P. L.	1,155,279.20	.....	546,247.42	75,261.86	370,679.21
Total, April 30	16,018,620.51	1,484,533.53	7,657,282.63	2,731,962.60	6,323,037.11
Total, March 31	15,941,212.53	1,600,551.33	7,814,462.12	2,881,061.14	6,618,097.87
Difference	77,407.98	116,028.81	157,179.49	99,098.54	295,060.76